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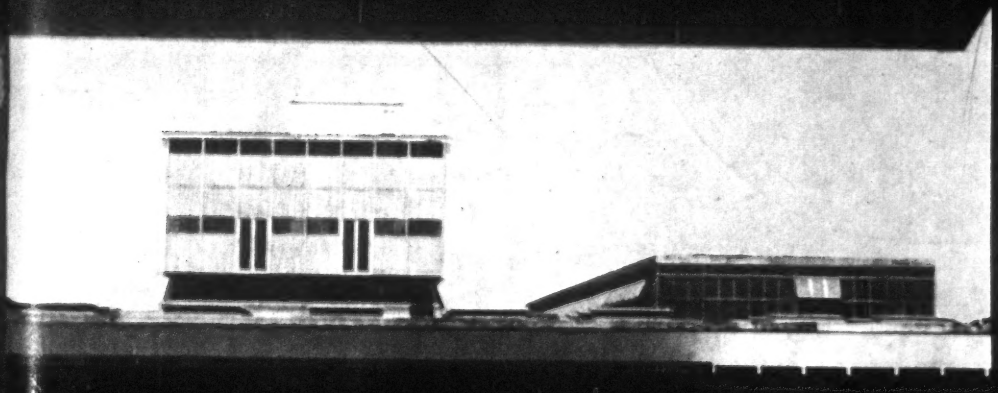

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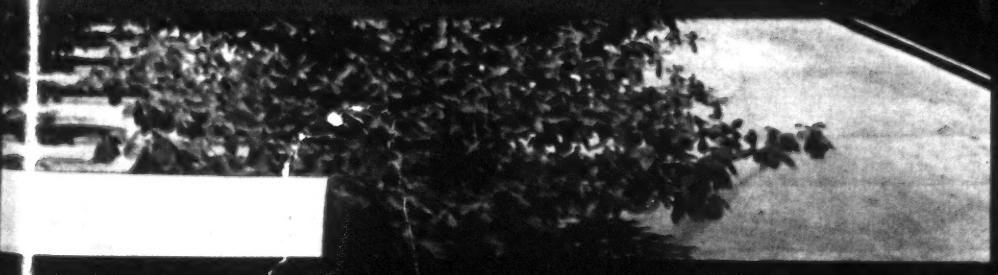

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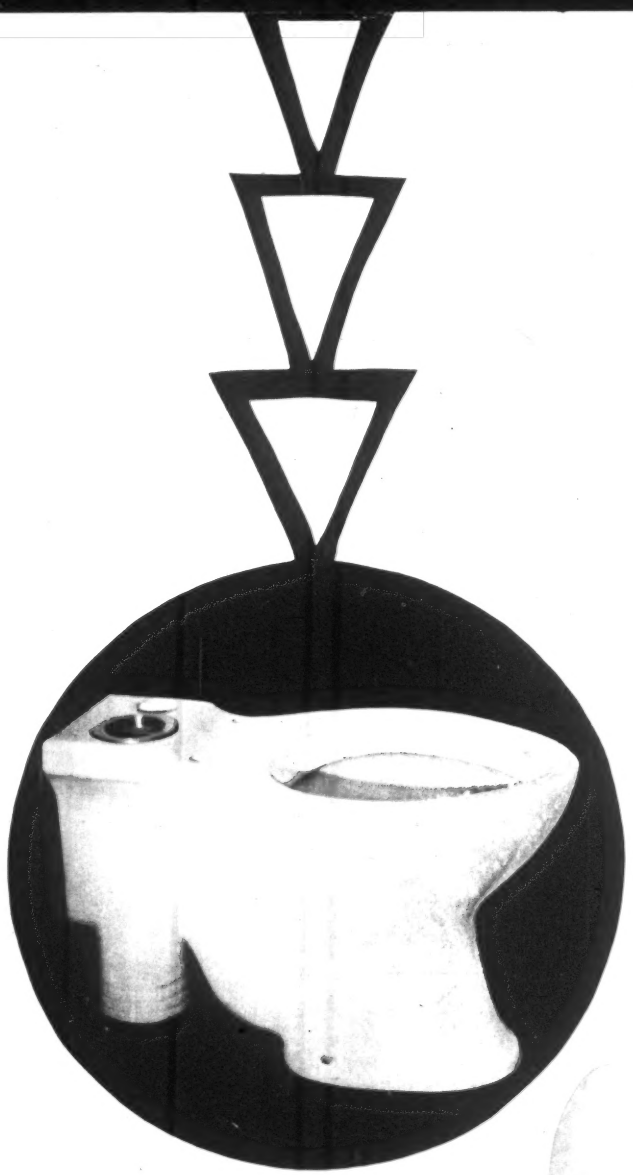

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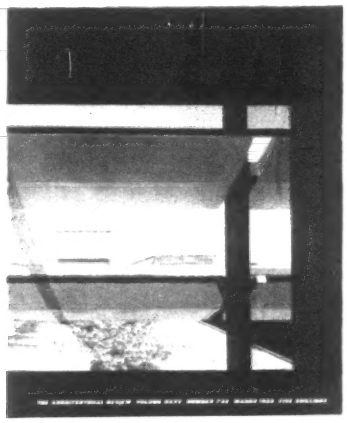

This Month's Cover shows a view through the sunshades of the administration building of the Burma Pharmaceutical Laboratories, Rangoon, looking towards the standing tower of the main production block. This enterprising and ingenious design by James Cubitt and Partners was previewed in the AR for November, 1955, and its completed state is illustrated and described on pp. 188–192 of this issue.

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CORRESPONDENCE

Origins of 'Functional'

To the Editors.

SIRS, In the course of recent research into architectural theory of the first quarter of the present century, I have been very struck by the absence of both purely functionalist conceptions, and the words associated with them. In particular, the word 'Functional' is conspicuously missing from the books and lectures of the period, and seems not to have made any consequential appearance in print until Alberto Sartoris's book *Gli Elementi dell'Architettura Funzionale* (1932) where the word is attributed to Le Corbusier, and a passage is quoted from a letter he wrote to Sartoris while the book was in preparation, suggesting that he should use 'functional' instead of 'rational,' which had been the common Italian usage up till that time. The word seems to have been a new one in Le Corbusier's vocabulary at the time too, and yet I am assured that it was in use in England in its accepted meaning by the late 'Twenties.

I would be interested to hear from any readers who can shed light on the earliest use of the word, and give dates for its occurrence in print or in speech before 1932.

Yours, etc.,
REYNER BANHAM.
9 Queen Anne's Gate,
London, S.W.1.

Death of a Monument

To the Editors.

SIRS, Thank you for your article on the collapse of the Campanile. This particular sentimental Anglo-Saxon always cherished the belief that the fall was caused by successive generations of caretakers hacking extra accommodation out of the ground-floor walls.

Yours, etc.,
EDWARD SAMUEL.
Highgate, London, N.6.

[The Editors add: the version of events given in AR, November, 1958, is based on the very full account given by that unsentimental Anglo-Saxon Horatio Brown, who was present in Venice at the time. His report may be found in AR, November, 1902, page 163ff., and although it mentions the holes, etc., made in the base in connection with the buildings that were later removed, it distributes the main blame between failure of the mortaring, the elements, and 'meddling' with the Loggietta.]

Projected Solent National Park

To the Editors.

SIRS, I was very glad to see that you are supporting the above scheme. Already the Hampshire County Planning Authority have declared a ten-mile-wide green belt and are opposing an application for permission to build at Bucklershard.

There is one aspect of the scheme, however, to which I would draw your attention: at the south-west

end of the Solent there is a shingle spit leading to Hurst Castle. Within its protection is the long line of muddy banks, colonized by *Spartina* grass, which are one of the main features of the Solent shore. This shingle spit is moving inland under the influence of the sea at a rate, I am told, around one yard a year. About thirty yards from the bank's present position is a creek parallel to the shingle. Eventually, if no steps are taken to prevent the shingle from drifting into this creek, the spit will be breached. At a guess this will mean the rapid erosion of the mud banks with far-reaching consequences, possibly as far as Calshot.

Are the proponents of the National Park scheme aware of this danger?

Yours, etc.,

CHRISTOPHER PERRATON.

Havant, Hants.

MARGINALIA

Milan Displayed

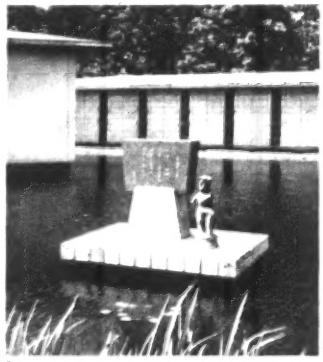
The visitor to Milan who wished to study its modern architecture has hitherto had to rely for directions on (*a*) a nose for style that would tell him whether the bus was passing through a district that tended towards, rather than away from modern (a less reliable guide than when Corb-hunting in Paris) or (*b*) access to an up-to-date copy of the "Rogers Map," which was not always to be had, or (*c*) the dubiously-good offices of certain curious expatriates who used to be found hanging around the refectories of student hostels.

These fallible guides have now been replaced, and not before it was time, by an illustrated year-book entitled *Milano Oggi*, edited by Gio Ponti with a multilingual text, and available in England from Tiranti at 18s. 6d. This gives, and should always give, photographs of the outstanding modern buildings, interiors, etc., together with the architects' names and the streets in which they are located, and backed up by some sketch-itineraries that could, with profit, be made more detailed and more map-like in future years.

The economies of annual publication clearly require that *Milano Oggi* serve not only as a guide to take with you, but also as a souvenir to bring back for your files, and for this function it also contains some evocative illustrations of ancient monuments and a record of the current news of art, theatre and sport the last represented not by car-racing at Monza (currently a sore point!) but by "the invincible Ribot." This section also includes two pages on the Museum of Science and Technology, where there is a model embodying Leonardo da Vinci's *pensieri* on architecture and town-planning, I, that deserves to be more widely known.

Taniguchi Memorials

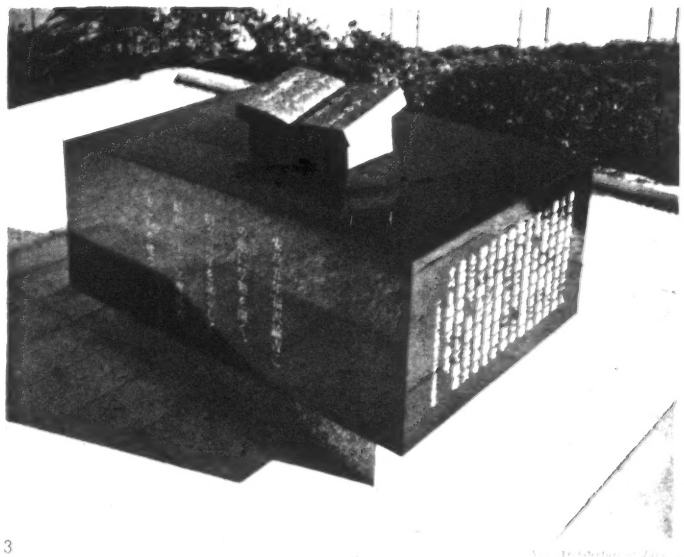
Another example of the way in which Japan is taking over from Italy in providing leadership in those minor, but not necessarily insignificant, architectural tasks on which the masters of the modern movement have given insufficient guidance, is afforded by a group of



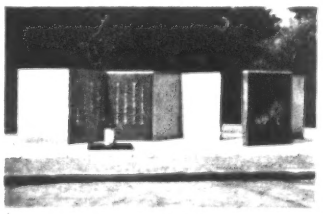
2 *New Architecture of Japan*

memorials designed over the last few years by Yoshira Taniguchi. These comprise a hall, dedicated to the memory of Tosun Shimazaki the novelist, at Komoro; a monument to Nobu Koda, who devoted her life to pioneering western music in Japan, and three of even greater cultural or symbolic interest, even to Western eyes.

These are the Memorial for Oto-Tachibana-Hime, the Aleestis of Japanese legend, a slab and a statuette in archaic form, 2, situated appropriately in a pool, since she drowned herself to save her shipwrecked husband; the centennial monument for Keio University, 3, a memorial stone surmounted by a carved book, two symbols that have worn thin in Western usage, but not here; and the memorial for the doctor-poet, Mokutaro Kuroshuto, 4, at Ito, in the form of a folding screen and vase.



3 *New Architecture of Japan*



4 *New Architecture of Japan*

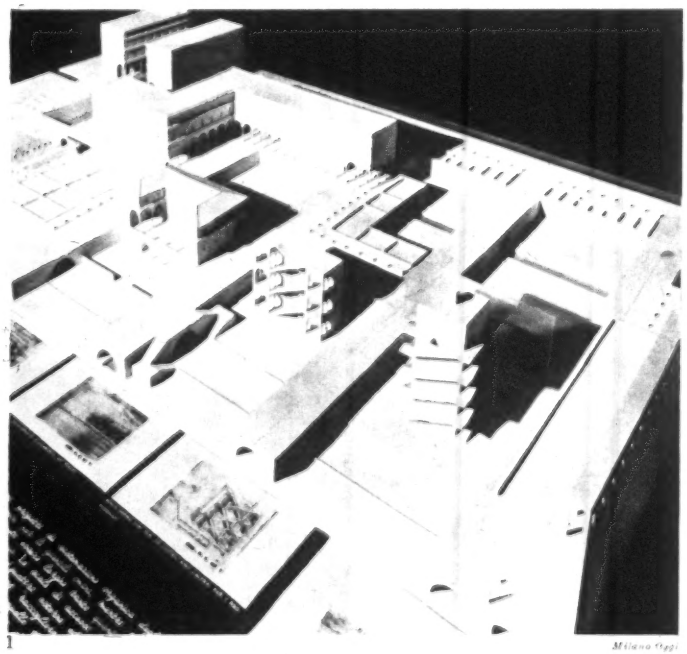
Not the least impressive aspect of these works of piety is that their programmes involved, over and above the purely memorial functions that Western architects seem to find embarrassing enough in themselves, further factors that would have rendered that embarrassment too acute for design to proceed in many cases. Thus, the monument to Oto-Tachibana-Hime adjoins the club-house of a golf-course overlooking the coast where she drowned (English architects might consider, for comparison, the task of memorializing Lady Godiva at an equivalent site in the Midlands); and beneath the vase of the doctor-poet's memorial are buried his stethoscope and fountain-pen. Yet Western architects can scarcely lay up so time-honoured and tradition-loaded an object as a regimental colour without losing their nerves and resorting to half-baked historicism. *Ecbe, sapi.* There is no need to spread embarrassment further by spelling out the obvious conclusions in words.

Horse-shoe Plan Hotel

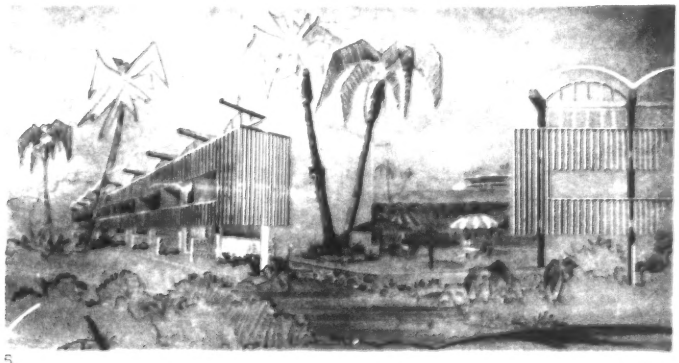
Hotels Fabulous tend to stand up tall and advertise their presence. The Hilton chain seem to have established an unbeatable precedent for this, and the low build and scattered structure of the *Bonnacrest*, on the Gold Coast of Jamaica, 5, comes as something of a surprise in this context. However, the site overlooking Montego Bay suggested the exploitation of all round views, the climate suggested maximum Trade-Wind ventilation and an anticipated holiday-making, rather than business-pursuing, clientele suggested low-density accommodation rated low-local labour costs probably took the worst edge off over-long staff circulation systems). In the upshot, the architects, Slater and Cleaf, of New York, have grouped the guest rooms in four blocks of three storeys each, laid out in a rough horse-shoe plan, with dining-rooms, and so forth, in a separate, circular structure between the arms of the horse-shoe.

Reece Winstone

Mr. Reece Winstone is a photographer. His name is familiar to many from his letters to *Country Life*, every one of them accompanied by a



1 *Milano Oggi*



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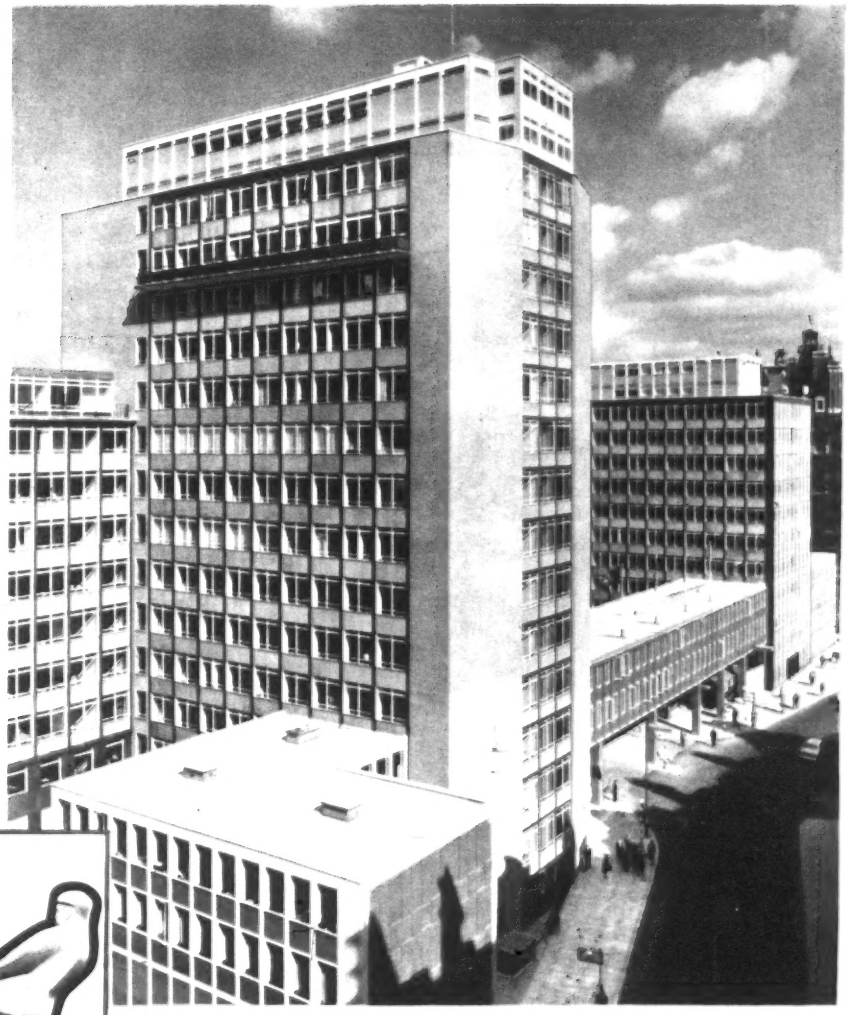

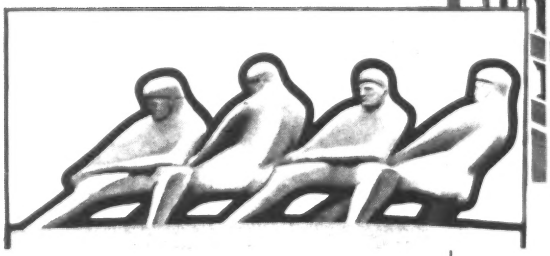

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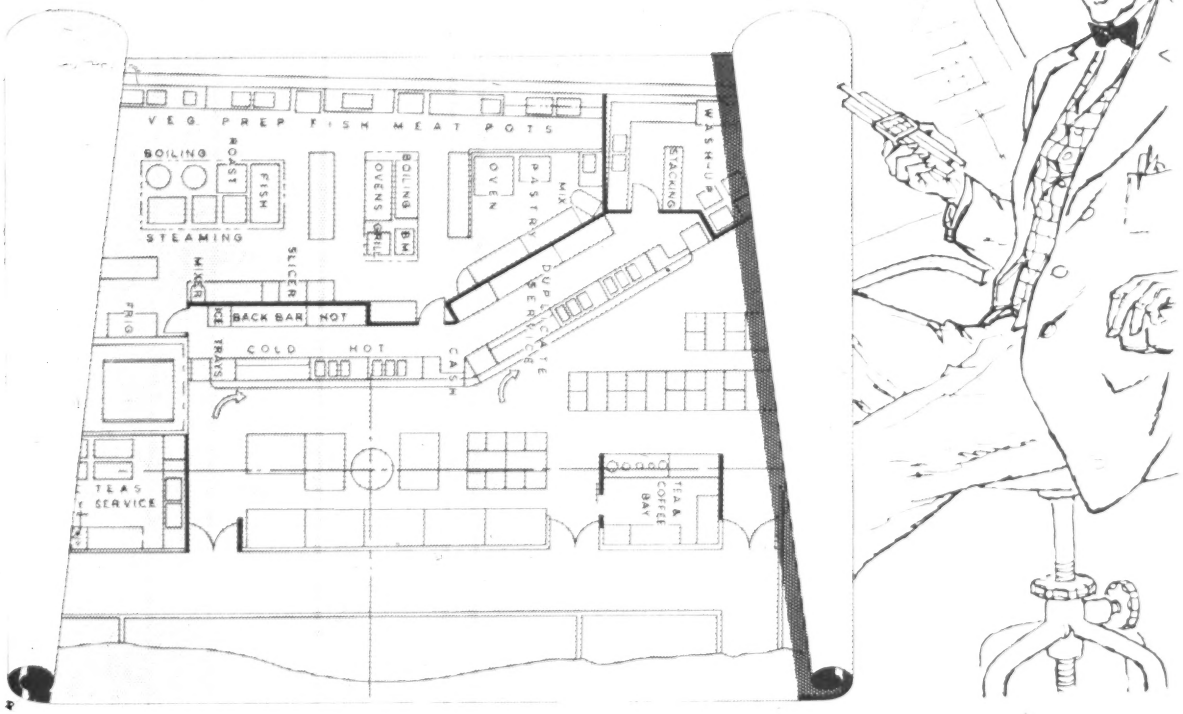

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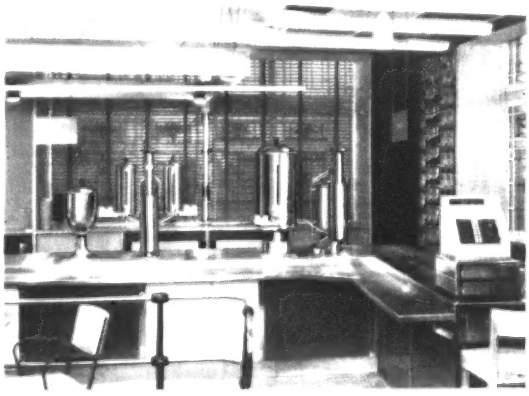

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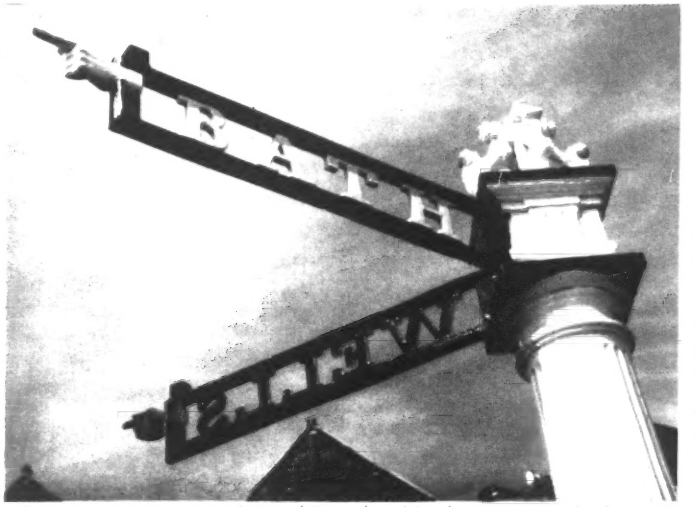


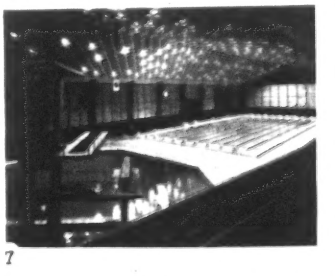
6, late-type Georgian signpost with cut out letters and a pointing hand, which is a relic of the earliest fingerposts.

photograph of an unusual building or object connected with architecture or townscape. What he writes about them is as unusual, odd pieces of information which it must be more arduous to gather than readers will at first realize. Mr. Winstone has made Bristol his home and as he has by now a collection of several thousand Bristol pictures, he decided to take the risk and go into print. The outcome is three paper-backed books on Bristol, all three to be obtained from Mr. Winstone himself: Bristol as it was 1900-1914, Bristol as it was 1914-1939, and now Bristol Today. The first volume had 170 photos, the second 100, this new one 200. Each of them costs only 10s. (or 17s. 6d. bound). Nor should it be thought that Bristol Today deals with anything but today. The volume is a very complete pictorial survey of Bristol including its old buildings, ecclesiastical and secular. So, to give a few instances, the old Bristol High Cross can be seen, which has recently been re-erected in Berkeley Square and also the interior of Wesley's Chapel, the fine Grecian Arcade, Arnos Court, built of slag in the Gothic style about 1765, the splendid shell-hood in Tailor's Court and one of the few new curtain walling jobs.

Mr. Winstone refrains from criticism of what Bristolians have recently done to their city (Centre Gardens!), but he has some strong things to say on the decay and demolition of valuable buildings. At the end of the book are some impressive lists of buildings saved since the war, maintained or repaired since the war, transferred to National Trust property, and still unsettled as regards the future.

Pool in Tokyo

Intended chiefly for competitive aquatics before an audience, the Metropolitan Swimming Stadium in Tokyo is the work of Masachika Murata and contains two pools, one for diving, seen nearer the camera in 7, and a ten-lane, fifty-metre pool for racing, seen beyond the diving basin. The main architectural interest of the scheme, however, lies in its section. Pools with accommodation for spectators are apt to be wasteful both of total volume and overhead space, as well as acoustically intolerable, if roofed by normal structures. The basic form of the section employed by Murata in order to avoid these difficulties is seen in the gable elevation, 8, the space being roofed by a series of asymmetrical portal frames, resting on the ground at one side, rising to a crest high enough to clear the trajectories of the divers, dipping, and then rising again over the rake of the grandstand and being supported, just beyond the left-hand margin of 8, by upward extensions of the stanchions that carry the grandstand seating.



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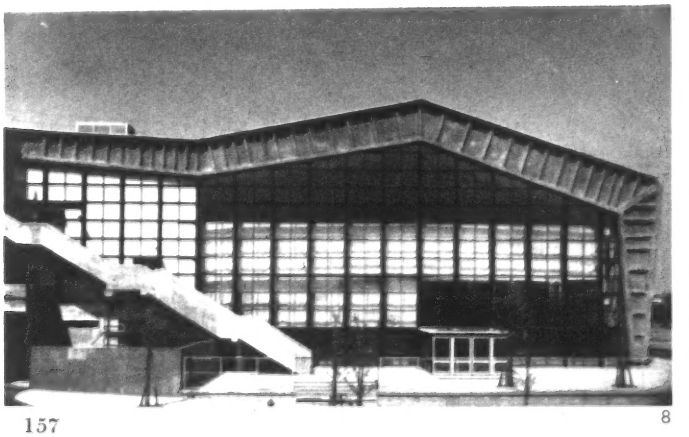
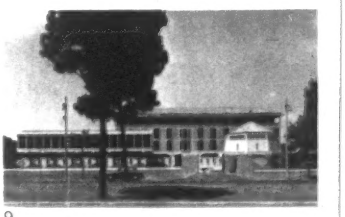


8

Udaci Centre

The Roman architect, Luigi Vagnetti, whose *Palazzo Grande* in Leghorn was discussed in AR, October, 1952, as an important manifestation of eclectic tendencies in Italian modern architecture, has recently completed a centre for UDACI, a Catholic ladies' organization, on the outskirts of Rome. This group of buildings, 9, comprising hostel, offices, etc., and a small round church, looks less ambiguous



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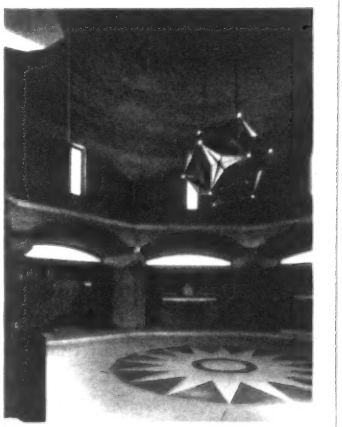


10

in its style than did his earlier work when seen against the background of other modern Italian architecture, if only because so many northern Italian architects now appear to be adopting a similar position, as described in Marginalia, AR, November, 1958.

If one may compare Vagnetti's earlier scheme which now appears as a pioneering work in a new idiom, rather than a harking back to an older one with this latest work, the general impression is of a greater degree of homogeneity in the new, fewer unaccountable random elements from earlier eclectic styles than before, a clearer and less ambiguous exposition of the constructive disciplines than in the rather ambivalent arcading of the *Palazzo Grande*. In the little church, in particular, one sees a constructional approach that commands attention and respect, 10, its mixed use of massive brick and stone seeming to revive an approach almost forgotten in Europe since Berlage's Stock Exchange in Amsterdam, though its planning, of course, rests on a tradition that is as old as Christianity in Italy.

CORRECTION

Police Headquarters: St. Pancras

The consulting engineers for this project (by the Chief Architect, New Scotland Yard), illustrated in the 1959 January Preview issue, should have been given as W. V. Zinn and Associates.

INTELLIGENCE

The British Architectural Students' Association are holding a conference on *The Function of the Architect in Society* at Trinity College, Cambridge, on April 4 and 5, to which they are inviting 75 B.A.S.A. members and 75 members of the profession.

The Ministry of Health and Ministry of Housing and Local Government are to have separate architectural departments. The Ministry of Health are inviting applications for the post of chief architect to take charge of building schemes for the Local Health Authorities and Hospital Boards; the Ministry of Housing and Local Government is to appoint a chief architect to establish a housing development group.

The Department of Scientific and Industrial Research is now to be the only Government Department responsible for building research and will invite various sections of the building industry to nominate representatives to a Standing Conference on Building Research and Development. The Ministry of Works will continue to provide the present service of Advisory Leaflets, Lectures and Technical Information Service.

Marcus Whiffen has received the 1958 Book Award of the Society of Architectural Historians, for *The Public Buildings of Williamsburg, Colonial Capital of Virginia*, which was judged the outstanding contribution to the literature of architectural history by an American author or on an American theme, published between October, 1957 and October, 1958. The award carries with it the presentation of the Alice Davis Hitchcock medallion.

ACKNOWLEDGMENTS

MARGINALIA, pages 155-157: 5, Slater & Chait; 6, Reece Winstone; 7, Y. Futagawa; 8, Akio Kawasumi; 9, 10, Foto Sciamanna Roma. FRONTISPIECE, page 158: Roderick Cameron. TIME AND LE CORBUSIER, pages 159-165: 6, 10, 13, 16-20, Hinks; 8, 9, McCallum; Arphot; 12, 14, Hicks. OFFICES IN KNIGHTSBRIDGE, pages 166-173: 1, 3, 5-17, Toomey, Arphot; 2, 4, Maurice Broomfield. BRICK CLIFFS OF DOVER, pages 174-178: 1-6, Galwey, Arphot; the remainder by J. R. Peverley. SWISS REVIVAL, pages 179-187: Nairn, Arphot. DESERT GATES, pages 193-195: 1, Ara Guler; 3, 4, A. Costa. INTERIOR DESIGN, pages 196-201: Unesco Paris, 1, 15, D. Berretty, Unesco; 7, G. E. Ifert; 8, E. B. Foto; 9, 12, Architectural Design. 16, 17, Johannes Krahn; the remainder by Jack Nisberg. ROYAL COLLEGE OF ART, pages 202-206: Frontispiece, Toomey, Arphot. CURRENT ARCHITECTURE, pages 207-210: Police Housing at Canonbury, 2, 3, Edgar Hyman. Flats at Gateshead, 5, 6, Turners (Photography) Ltd. House at Richmond, 7-10, Toomey, Arphot. MISCELLANY, pages 211-216: Exhibitions, 1, Sandra R. Lousada; 2, Nathan Rosenberg; 3, Museum of Modern Art, New York; 4-6, Photo Studios Ltd. & Royal Academy of Arts; 7, Waddington Gallery; 8, Burrell Collection, Glasgow Art Gallery. Art in Use, 1, Roderick Cameron. Counter Attack, Nairn, Arphot. SKILL, pages 217-220: 3, Technical Precision Co.; 7-9, 11, 12, Toomey, Arphot; 13, Econa Modern Products Ltd. THE INDUSTRY, pages 220-224: 1, The Wallpaper Manufacturers Ltd.; 2, Ideal Boilers & Radiators Ltd.; 4, Walter Nurnberg.

What appears to be some kind of dead tree in the photograph opposite *standing gaunt and romantic in a Mediterranean garden, is in fact a rare piece of functional sculpture from the heroic age of electricity—a lightning conductor, transplanted from the roof of an historic house whose identity is revealed in a note on p. 214.*

Nikolaus Pevsner

TIME AND LE CORBUSIER

The touring exhibition of the works of Le Corbusier, which is now at the Building Centre, London, shows his buildings as they were in their prime, when the rendering was white. The photographs on the next few pages show them as they are now, neglected or insensitively altered. The difference between their original and their present state is a blot on the face of European culture—they do not make beautiful ruins, and there is no reason why they should have to, within a quarter century of their erection. In the article which begins below, Dr. Pevsner states the case for their preservation as a charge on the French Service des Monuments Historiques.

It is easier in France—and for that matter in England—to find a ruined medieval keep in the depth of the countryside than a recently built private house by however distinguished an architect. Even Le Corbusier is not to be excluded from this statement, as anyone can attest who has made desperate efforts to trace his villas with no more to go by than the indications in the *Œuvre Complète*. Evidently, the people in the suburbs or villages where they stand have no inkling of their historic significance. This is confirmed to a degree when one has at last found them. Few Le Corbusier fans in this country can be aware of the state in which a number of them survive. It is a strange state and one's reactions are at first confused. They are conditioned by the uncertainty of whether one ought to enjoy this unexpected state as pleasing decay, or castigate it as premature dereliction. Whichever way one looks, however, one is left with an uncomfortable feeling of ambiguity.

As regards pleasing decay, the trouble is that—to me at least—decay in the case of

Le Corbusier villas just is not pleasing, either intellectually or visually. Intellectually the shock of seeing recent pioneer-work so patently slighted spoils any possible aesthetic pleasure in the decay, and one walks away depressed that the battle for modern architecture evidently is lost, the battle fought by the generation that was young when Le Corbusier built at Vaucresson in 1922, at Garches in 1927, at Stuttgart in 1927, and at Poissy in 1929. In addition, and this is especially so in the case of the Villa Savoye, the connotations of this particular decay—occupation, the collapse of France, the rounding up and the destroying of French Jews—are too frightful to allow even an attempt at aesthetic appreciation. Aesthetic appreciation needs detachment. Extraneous emotions shout it down.

But even where no extraneous emotions interfere, Le Corbusier's houses can't please in decay. Concrete structures with walls designed to be rendered white make bad ruins. What we are used to enjoy in decay, according to our upbringing, but perhaps also according to just laws of aesthetics, is weathered stone and lichens, indeed all that Ruskin has praised in so many fine passages. Flaking stone may look melancholy; it does not look shabby. Le Corbusier's style from 1920 into the 1930s has as its hallmark the smooth white surfaces of walls with metal windows cut into them without any intermediate mouldings and with an uncompromisingly sharp horizontal line to set them off from the sky. These white surfaces must be white, these metal window frames free from rust. The Villa Savoye at Poissy should greet us on its hill-crest as an eternal Kidder Smith vision.

Yet, in looking at recent photographs of Poissy, a sneaking, ambiguous, perhaps a malicious pleasure creeps in, a pleasure—admittedly more intellectual than visual—engendered by seeing nature win over man. After all, we are ready to admire the classical temple or even the Roman aqueduct in ruins as much as the Gothic abbey, in spite of the fact that the latter, being of a dynamic, permanently growing and changing nature, makes a good ruin, whereas the former, being finite, static, unchangeable, calls for high finish and perfect condition. So we, who don't suffer technocrats gladly, may well find ourselves indulging in a satisfaction over grass on the terrace and bushes on the roof.

But there is something else to complicate matters yet more. Le Corbusier himself, incalculable as ever, has lately made his pact with the devil-nature and ushered her into his creations—not as a gracious contrast to the crystalline purity of his forms, as in the case of the tree inside the Pavillon de l'Esprit Nouveau (or in the case of the waterfall in Wright's *Falling Waters*) but as a partner on equal terms. However much Le Corbusier may protest against the desecration of his early masterpieces, his most recent ones, and especially the Maisons Jaoul, possess this same quality of the *non-finito*, the roughness, the sympathy with the accident, the licence for things to grow where they choose, with which nature is now trying to endow the early villas—Act of God, correcting act of Le Corbusier, you might say, or Act of God, improving Early Le Corbusier into Late Le Corbusier.

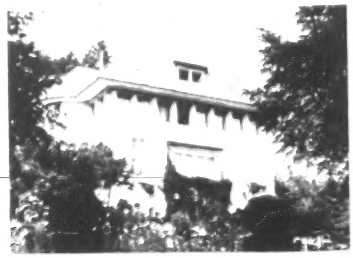
So perhaps one is wrong in assuming without any check that Le Corbusier is protesting. Perhaps he is delighted. But whether he is or not, we cannot be, or perhaps I ought to say I cannot be. As an historian I must detest this reworking of man's work by nature. I want my evidence genuine and refuse to accept it fiddled, whether by man or by nature.

But enough of these pleasantries. The case is really much less subtle. Here are buildings

[*continued on page* 165

time and le Corbusier

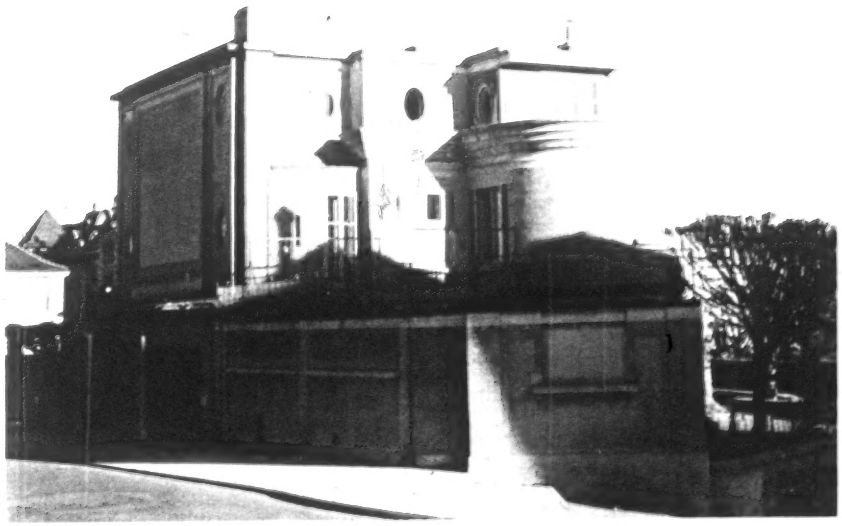
Le Corbusier's completed before a century period in time around 1922 it might almost seem that Le Corbusier's work has suffered a reverse ratio to its age and conventionality of design: the first house he ever designed, 1, and the villa for his parents, built in 1913, 2, both under the already respectable influence of



1

German architects Peter Behrens, Paul Bonatz and Heinrich Tessenow, are a good shape for houses in the country or cities and little altered from their original designs: the Jeanneret villa of 1907, 3, reverts to Jan Perret, to Beaux-Arts formality, but remains a scant step to Hoffmann's Villa A. It is rounded bays and concealed a Wright-in plan with a as well as a roof that rivals that of any of his contemporaries in the suburbs of Paris or Amsterdam. But the villa Savoye at Poissy, 4, a statement of once expansive and compact of the post-cubist architecture of Le Corbusier's 1920's, presents a rugged face to the surrounding cabbages-patches: the sharp definition of its forms remains, but the white surfaces seem as if legal are no longer absolute planes on which exceptional decoration, built with sculpture. Yet this last was not an expression of style to prevent the architectural insensitivity, it is one of the disasters of war precipitated by the tragedy of the Savoye family under German rule. The vicissitudes of Le Corbusier's works have stemmed from vagaries of ownership.

2



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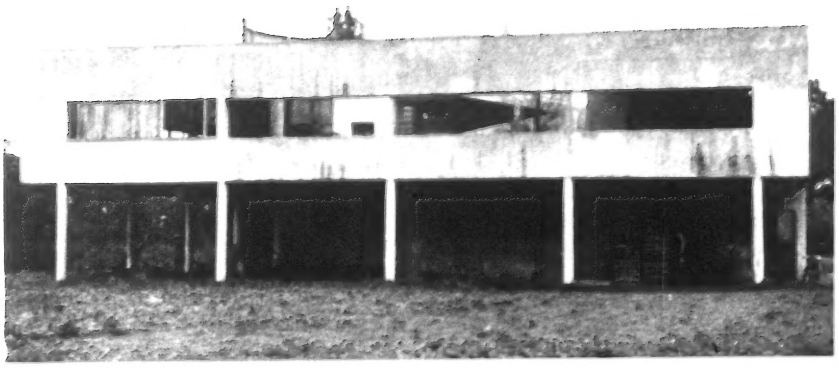

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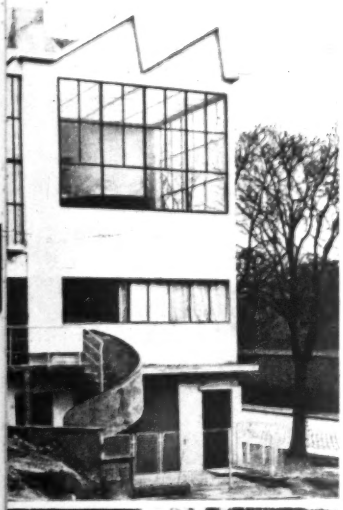
before



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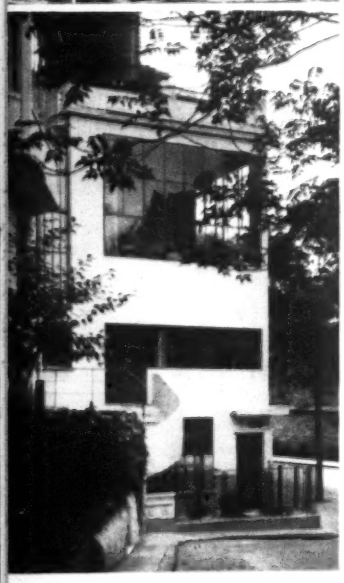


6

after

before

after

after

7

5 and 6, the outrages committed against le Corbusier's buildings vary from the wholesale and obvious to subtleties that almost look as if they must be deliberate. The removal of the rooflights of the Ozenfant studio-house of 1922 is crude surgery that has wrecked the natural lighting of the interior, but observe also what the alteration of the door has done to the façade.

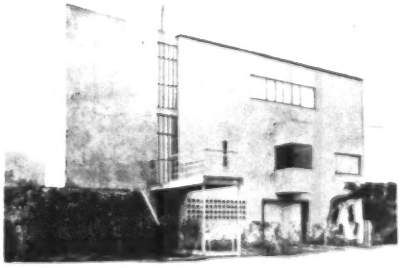
7 and 8, three years ago it appeared that the villa de Monzie at Garches might be destined for the respectful future that its high esteem among architects deserved, but another change of ownership has produced conversion into flats, and a series of minor surgeries inside and out whose thoughtless obviousness adds up to a subtle destruction of a highly sophisticated pattern of openings on the ground floor. The dropping of the line of the top of the garage doors, the doubling of the door to make a symmetrical composition under the balcony—both bespeak a tidy mind, but the wrong mind.

8

time and le Corbusier

9 and 10, the fate of the villa at Vaucresson, a pivotal work of 1922, is wholesale butchery in which, for once, stylistic prejudice appears to have been effective—hence the pitched roof.

11 and 12, simple but effective: the pure rectangularity of the Palais du Peuple, first masterwork of le style corbu in 1926, wrecked by a new roof with just sufficient pitch to offend the eye.



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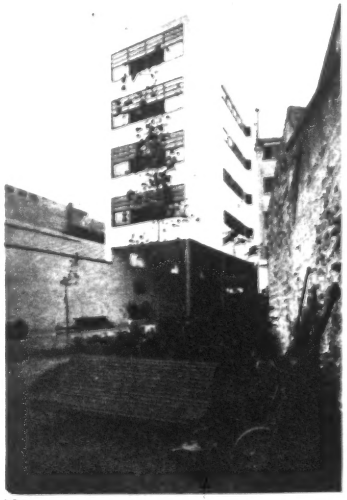

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before

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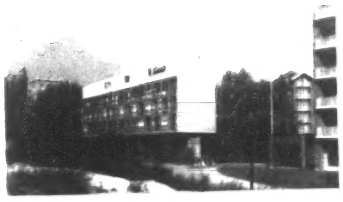

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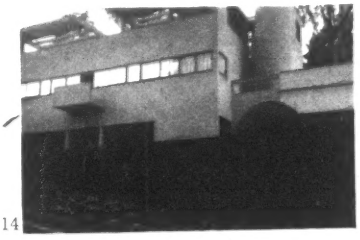
13, the Pavillon Suisse, the great masterpiece of 1930, shows the benefits of decent, continuous upkeep—effective as the day it was built. it is now flattered by the trees and the other buildings that have gone up around it.



14

14, the rewards of remaining in one, sympathetic, ownership are also demonstrated by the matured and settled aspect of the little-known, little-visited propriété Church, a string of buildings designed in 1928 around the perimeter of a private garden in Ville d'Avray.

15 and 16, in pitiful contrast, the terrace of the villa Savoye—farm junk, invading grasses, the original shrubs grown out of control, mocking well-built forms that time has not yet chipped or blunted.

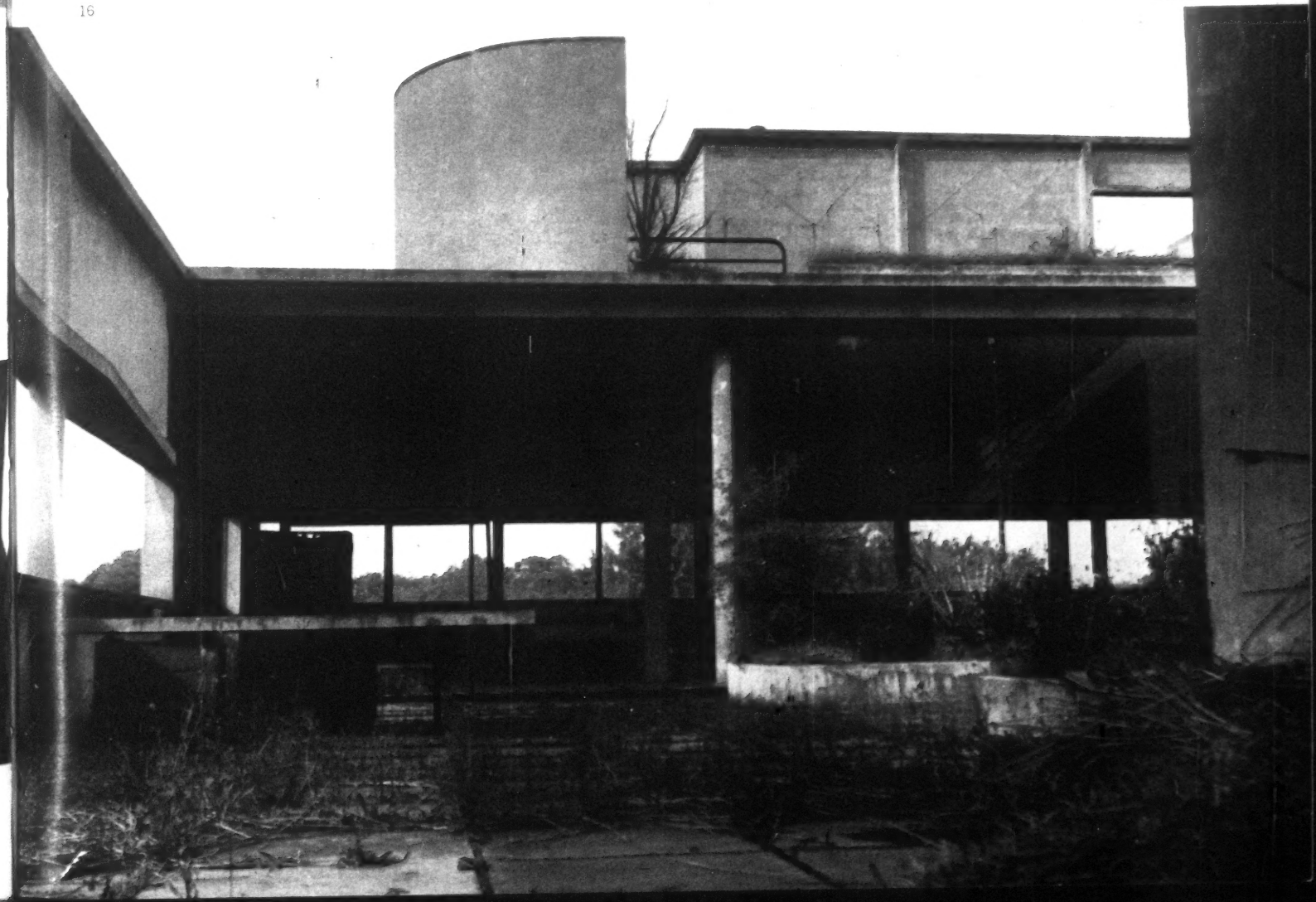
17, over page, when the villa Savoye was white, le Corbusier waxed enthusiastic over its site, a slightly domed rectangle of uninterrupted grass, surrounded by banks of trees. The trees re-

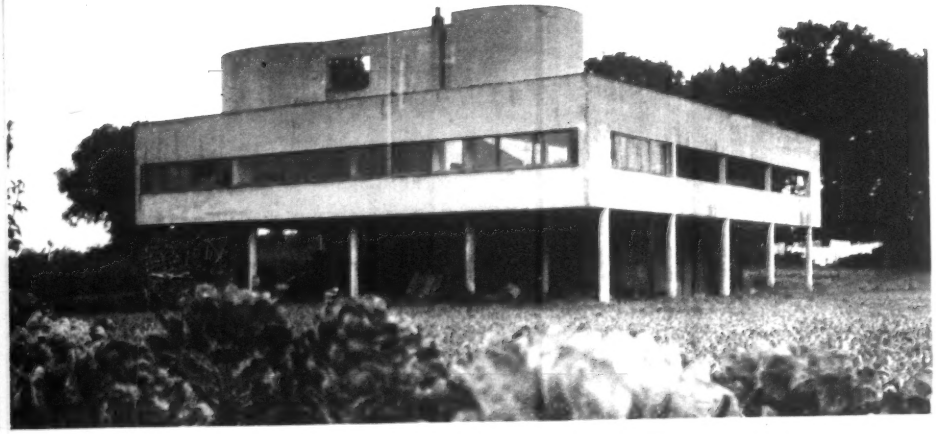
then

15

now

16

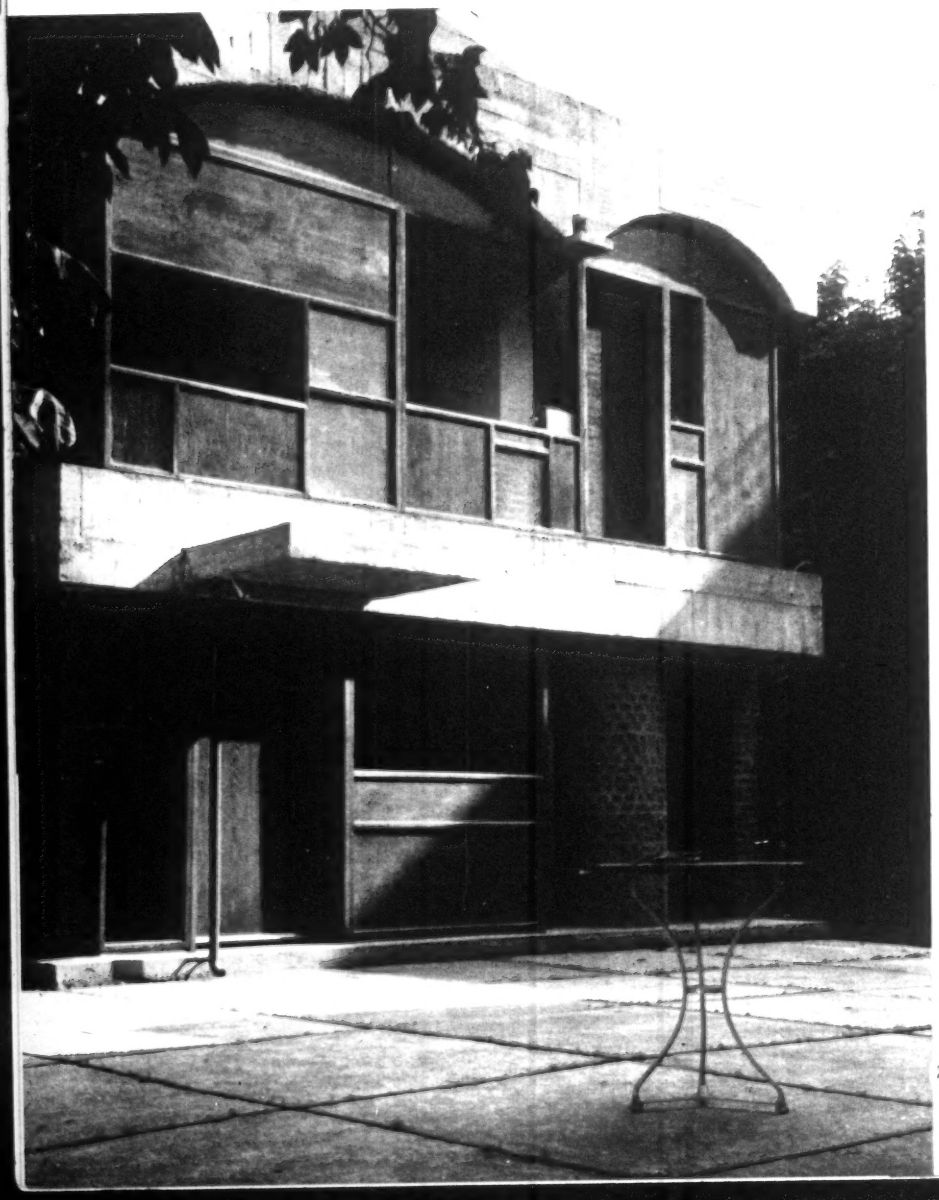




17

main, the grass has gone, replaced by the busy patterns of market gardening, a pattern that is prolonged into the house (also for interpenetrations of inner and outer space) by impedimenta such as tractors, carts, piles of logs. The affront is curiously worsened by the way in which the cabbage-forms in the foreground almost ape the spectacular tropical plants that set off this building's homeroms prospect in South America.

15 and 19, on the terrace, time has taken a complex revenge over formal purity. These scenes strike a familiar note, they echo the photographs of the roof terrace of le Corbusier's own flat at the Porte Maillot, and mock his delight on returning home after the war to find a wild garden self-established among the flagstones. But at Pessac much of the greenery that makes romantic what was once classi-



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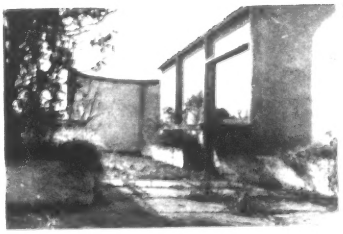

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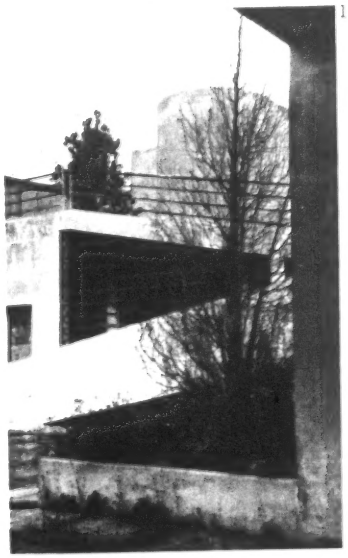


19

cal, is of his own planting.

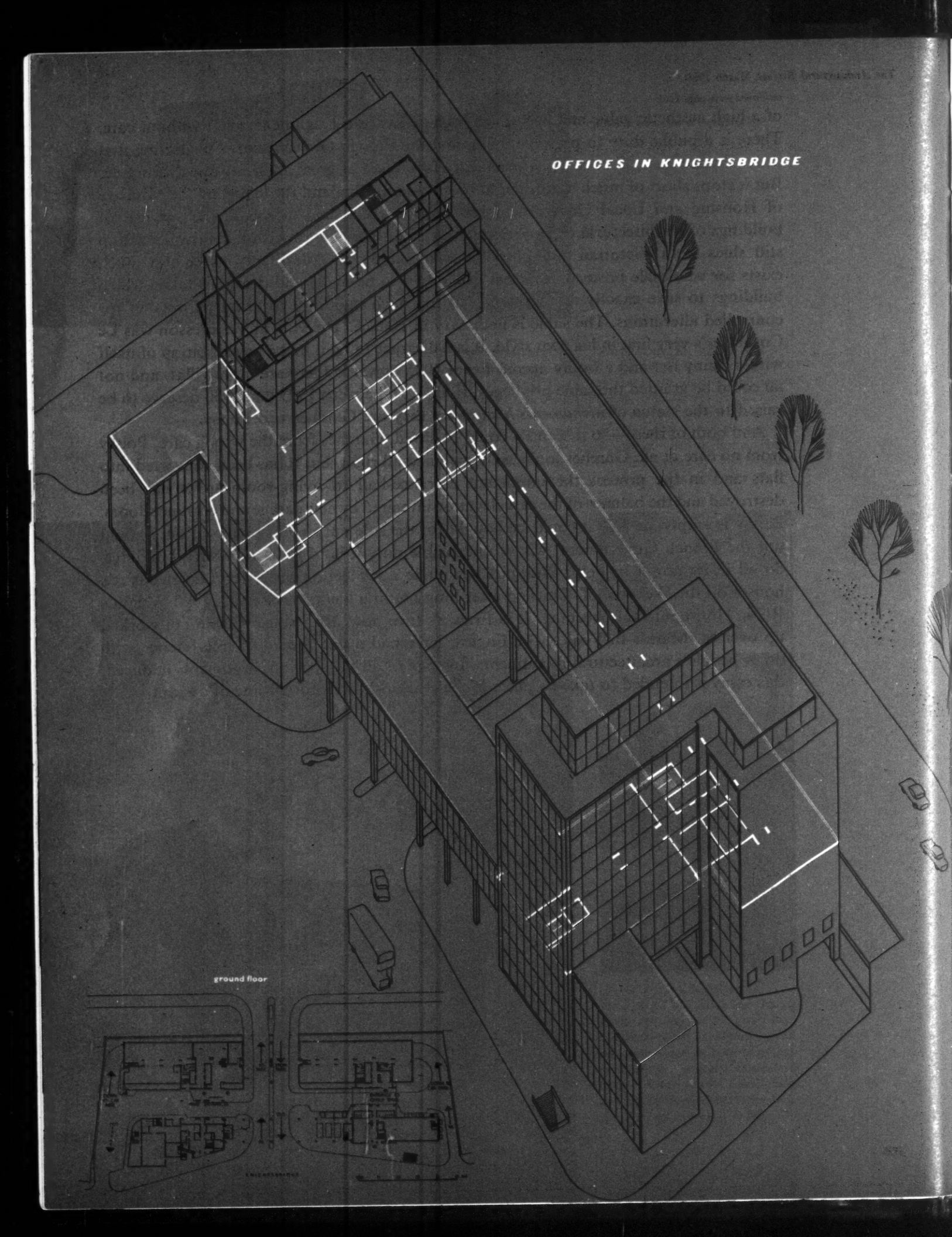
20, and in the Maisons Jaoul, most striking of his post-war domestic work in Europe, such accidents seem to have been put to work deliberately, large and clear-cut forms are consciously set off by rugged textures that weathering can only enhance.

continued from page 160]

of a high aesthetic value and at least as high an historical significance left without care. There is a public duty to preserve them, and the French Government is neglecting that duty. France has a *Service des Monuments Historiques* of great antiquity and distinction. But it stops short of much that it ought to include. In England the listing by the Ministry of Housing and Local Government has done a great deal to secure the survival of buildings of 'architectural or historic interest'. But even the English listing organization still shies from Victorian and post-Victorian buildings. Admittedly much too much exists for wholesale protection. Select lists ought to be made and decisions taken which buildings to save exactly as they are, and to which buildings to grant permission for controlled alterations. The same is necessary in France. The villa at Vaucresson was Le Corbusier's very first in his own style. It is a disgrace to let it make an exhibition of itself with a funny hat and a funny apron. From 1925 onwards there are more villas, and not all could be granted the same privileges. If any two between 1925 and 1930 deserve to be raised to the status of *monuments historiques* they are Garches and Poissy.

And both of these—so it seems—could be saved, Garches from the wrong care, Poissy from no care at all. Garches looks well-groomed all right, but it has been converted into flats and in the process the important entrance-hall to living-room space has been destroyed and the balance of the east elevation impaired by new garage and entrance doors. Poissy is empty, and so it could be bought for the sole purpose of preservation. Should not the French Government, whose undeniable duty it is to look after such buildings, do all in its power to help? Stuttgart has made a protection order for Le Corbusier's houses on the Weissenhof, Chicago after long battling has taken Frank Lloyd Wright's Robie House into safe keeping. It is France's turn now. Ever since Ruskin got worked up over St. Mark's in Venice, the English have had a fine record of interference with other people's architectural monuments. In spite of all the specious arguments adduced, this essay is intended to take its place in the Ruskin-Morris-SPAB-line of descent.

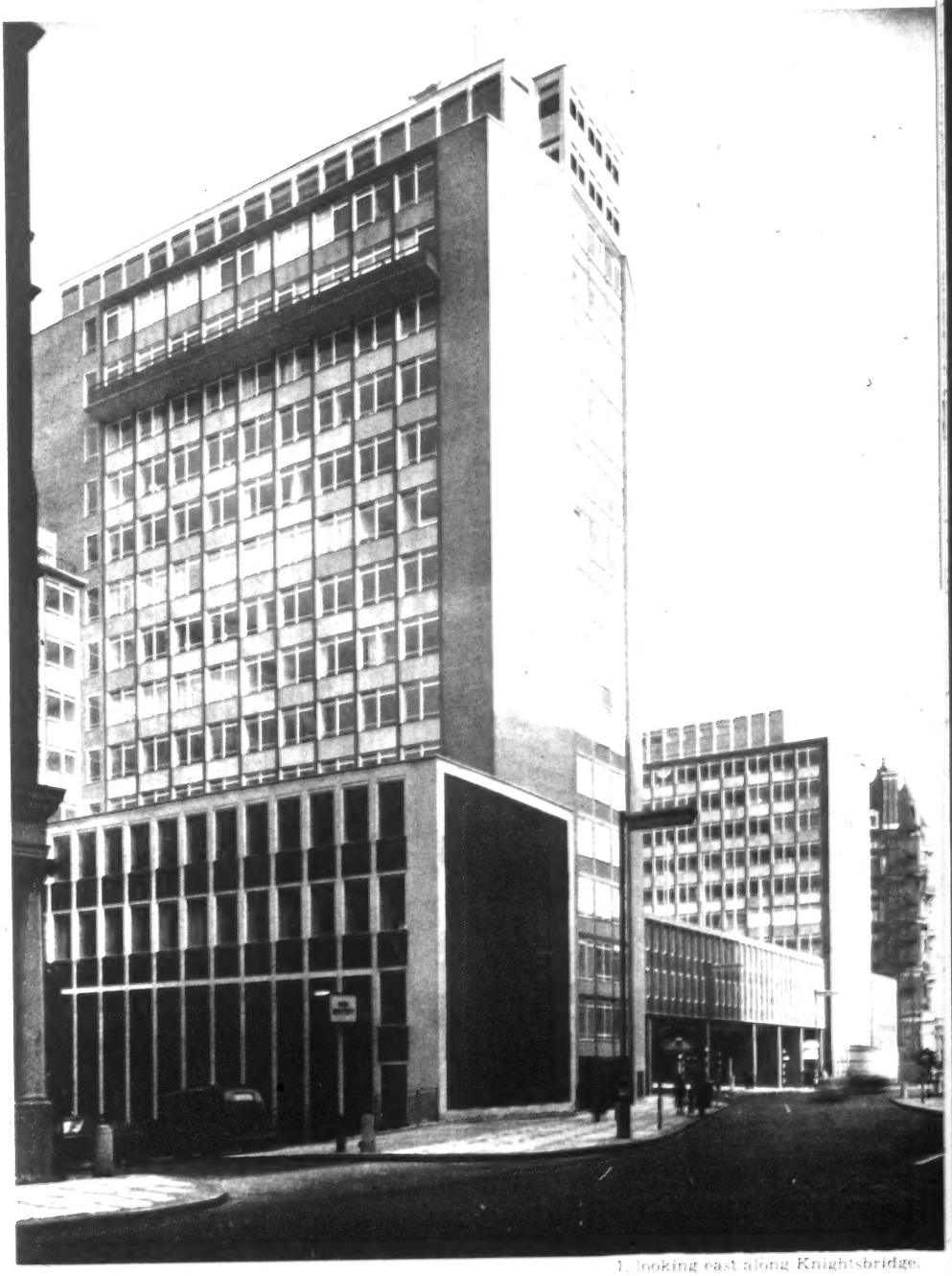
OFFICES IN KNIGHTSBRIDGE



ground floor

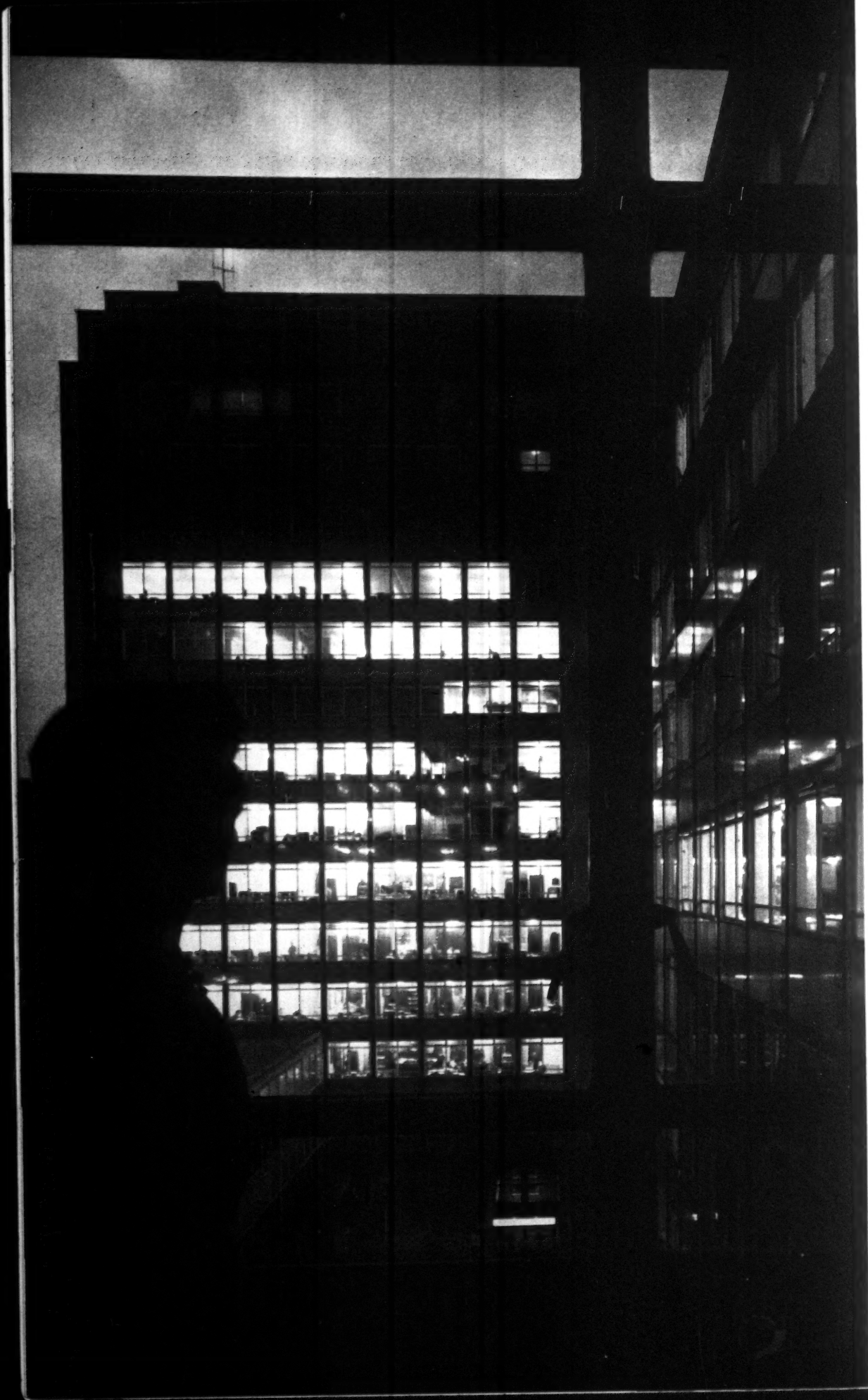
OFFICES IN KNIGHTSBRIDGE

ARCHITECTS | **GUY MORGAN AND PARTNERS**

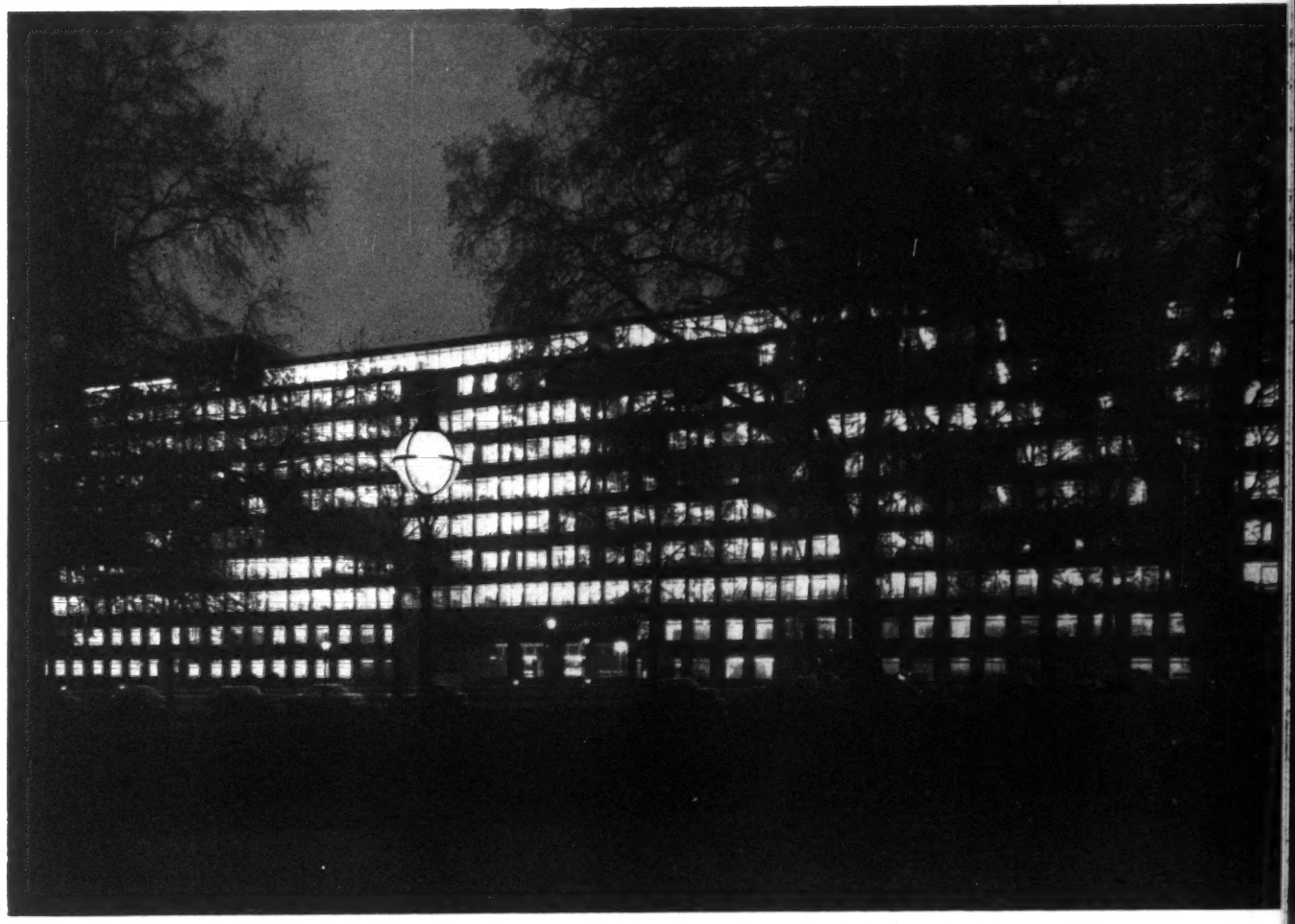


1. looking east along Knightsbridge.

The site is bounded on the north by Hyde Park and on the south by Knightsbridge, with the Hyde Park Hotel on the east, and was zoned for office development at a plot ratio of 4·5:1. The London County Council plans required that the new road leading into Hyde Park should cross the centre of the site, and together with the



2. the high tower seen from the lower block, looking across the main entrance courtyard.



widening of Knightsbridge, this affected one-quarter of the site. Car parking had to be provided at the ratio of one car to every 2,500 sq. ft. of gross floor space and is mainly at basement level. All entrances and car parks had to be reached from private service roads, to avoid interference with the flow of traffic on public roads.

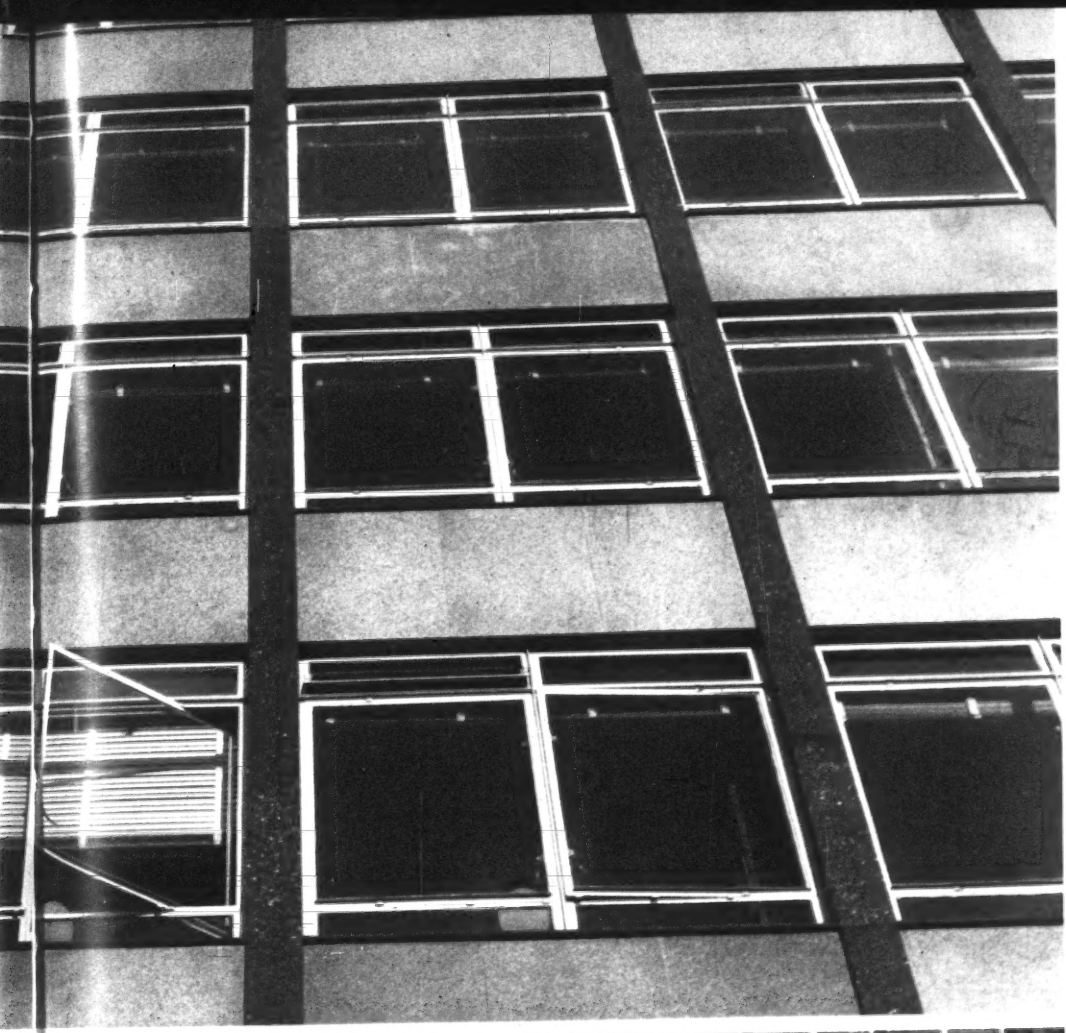
The building is designed entirely as office space, demanding first-class lighting, fast lift services spaced so as to avoid long horizontal circulation, and grids planned so that office space could be cut up at a later date.

The building is planned in three main blocks: Park Block running east-west, 366 ft. long and close to the Park, with fine views of the trees and, from the upper floors, of the Serpentine and the hills to the north and south of London; the high tower of 17 floors and the low tower on the east at the same height as the Park Block. Smaller buildings serve as links along the Knightsbridge frontage. The centre portion of these low blocks is supported on columns allowing the 70 ft. wide dual carriageway of the new road to pass underneath the building. The road then crosses a long narrow courtyard and runs under the Park Block, where it is covered by a curving canopy which protects the building above from noise and fumes and marks the road entrance visually.

The construction is of reinforced concrete on the balanced cantilever system. Two-thirds of the weight is taken on the widely spaced internal columns, one-third on the external mullions which are spaced at 8-ft.

OFFICES IN KNIGHTSBRIDGE

3, night view of the park façade, with the continuous 300-ft. long window on the top floor.
4, the service road between the Park block and the low block fronting Knightsbridge leads to the main entrance on the right and runs across the public road into the park.



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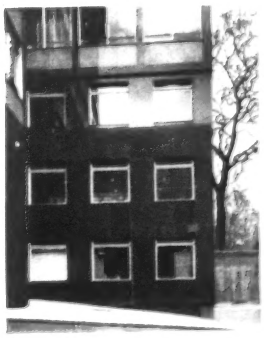
5, wall detail on the low block, with mullions of Portland stone.
6, wall detail on the Park block; the structural grid is faced with blue pearl granite; the reinforced structural spandrel with grey granite.
7, the public road under the building, which is carried here on granite-faced columns with a 35-ft span.
8, the north elevation of the Park block; the double width mullion marks an expansion joint in the structural frame.



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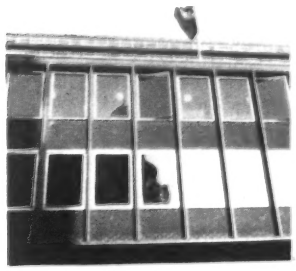
9, the south elevation from the top of Sloane Street.
10, one end of the Park block from the service road; the bottom three floors form a Vierendeel beam and carry the upper part of the building.
11, part of the low block, with ebony brick aprons.

5 | 6
7 | 8



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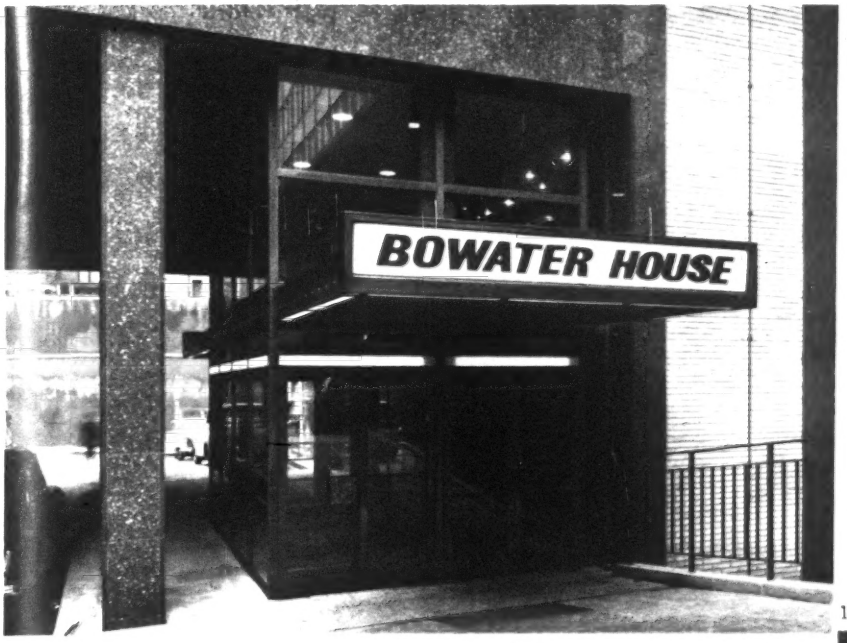
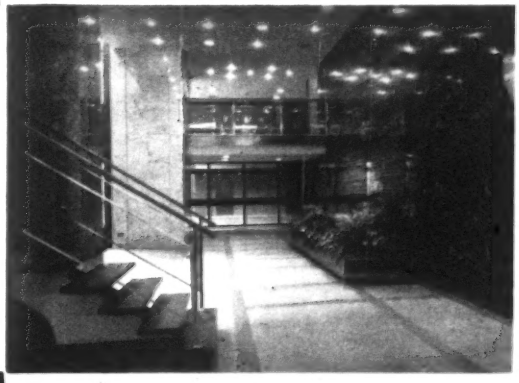


14

12, 13, on the facing page the entrance hall and waiting area, with furniture designed by the architects. The gallery above provides space for exhibitions.
14, canopy over the main entrance.
15, the entrance porch from inside, and the bottom of the cantilevered staircase.

centres. By having windows divided down the centre the grid for offices is 4 ft. Heating is by hot-water pipes embedded in the structural slab. The whole of the site was excavated and the buildings carried on r.c. foundations, with the roads as bridges, sloping to allow for the varying site levels. Natural materials were chosen as finishes. The main cladding is thin 1½ in. polished blue, grey and pink granite, grey and dark blue bricks and Portland stone for the low blocks and for copings. The lift motor rooms have been designed with the tank rooms, plant rooms and caretakers' flats as two-storey roof buildings echoing the plan of the main building below.



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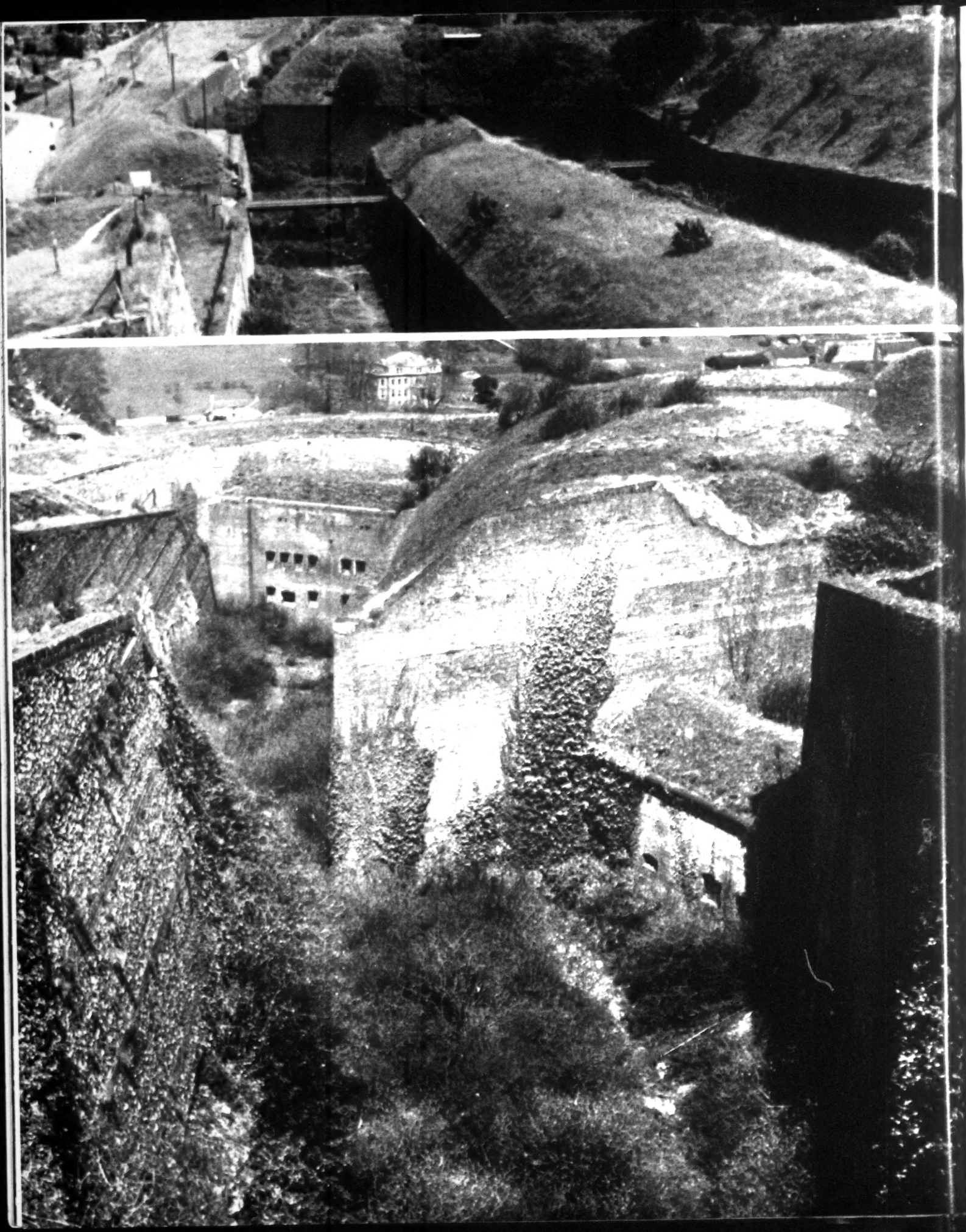
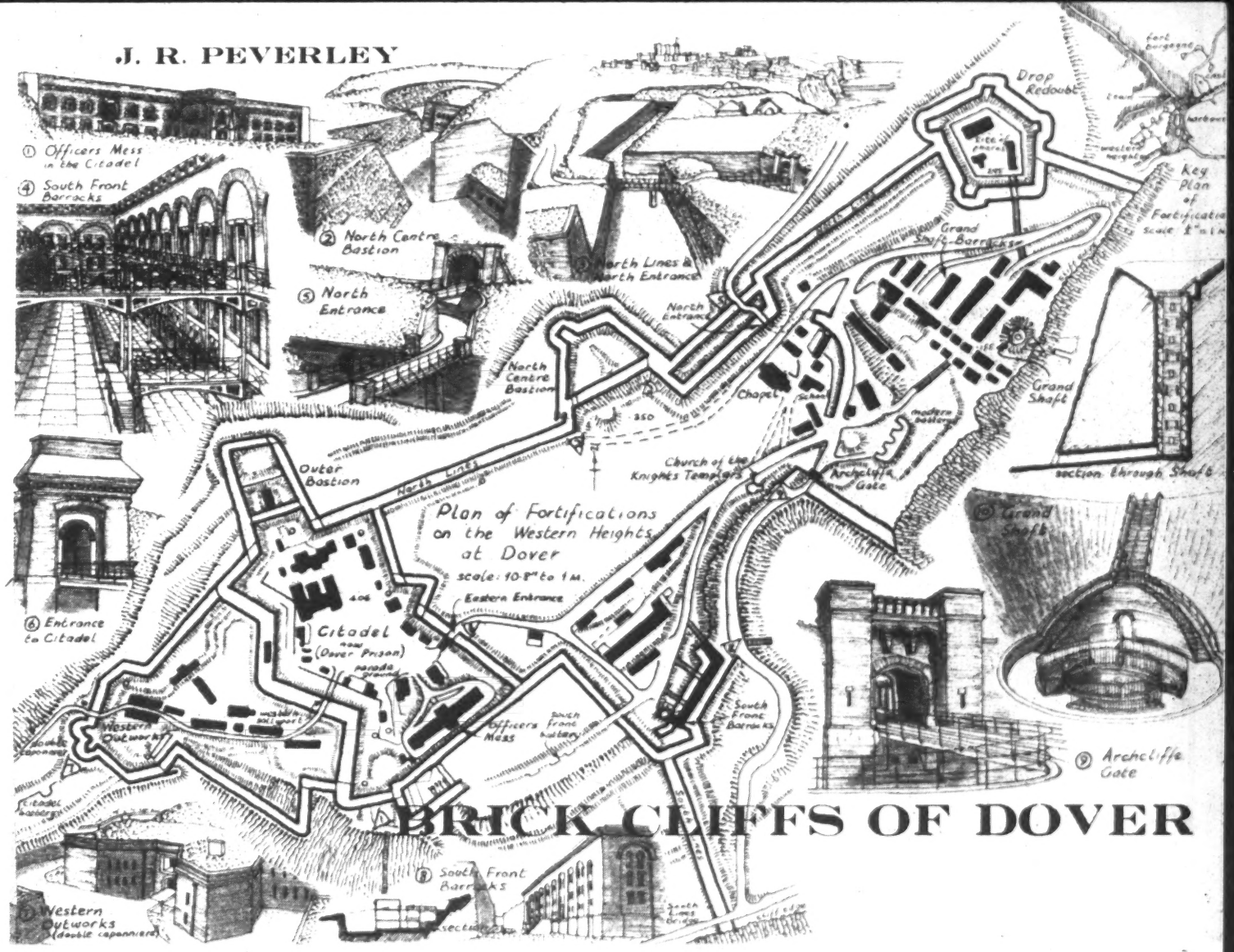
OFFICES IN KNIGHTSBRIDGE

16, looking in at the lift lobby of the east tower.
17, corridor on the north side of the low block, with the wall housing a deep beam.

17



J. R. PEVERLEY



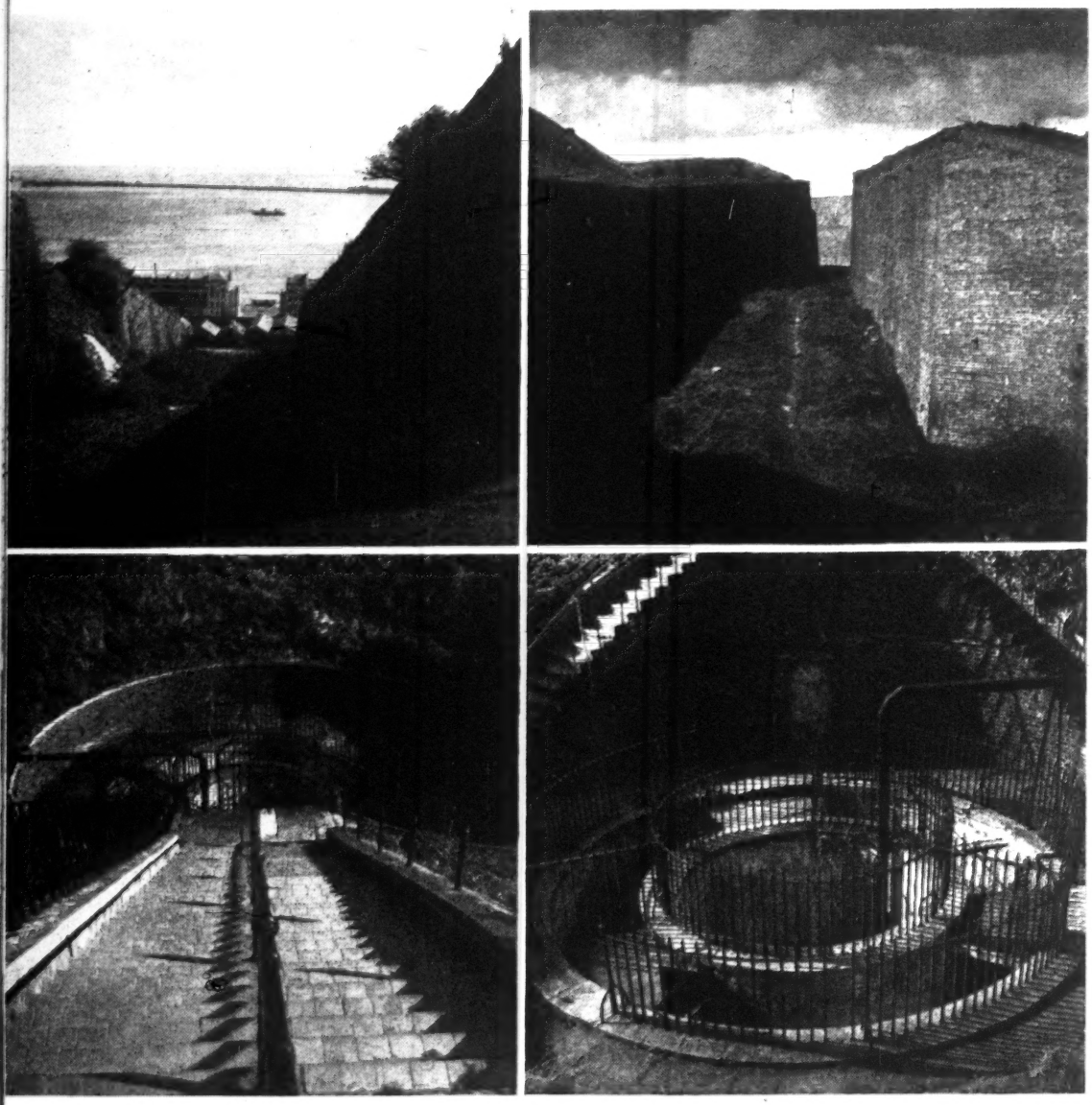
BRICK CLIFFS OF DOVER

It is not only atomic war that twists and disrupts the landscape with structures of fantastic scale; the Napoleonic and Victorian fortifications at Dover can boast tunnels, shafts, excavations, underground buildings and bomb-proof vaults that command respect even today, as J. R. Peverley makes clear in the article below. On the other hand, the present condition of these works, ill-maintained and crumbling, is both dangerous and deplorable—as monuments of our military past they deserve care and attention quite as much as do the medieval fortifications that face them on the other side of the town. Shown opposite ☞ are the earthworks at the North Lines, looking east (top) and towards the north centre bastion (bottom). The drawing of the fortifications, above, is by the author.

Unknown to most people, there exists on the hills surrounding the town and port of Dover, what was considered at the beginning of this century, to be the strongest and most elaborate piece of fortification in the country.

Although the development of this fortification has continued sporadically since Roman times, being strongly influenced by the invention of gunpowder in 1320, the introduction and development of artillery, and a succession of wars, the most intense period of building occurred in the twelfth, thirteenth and nineteenth centuries. The medieval fortifications, comprising the famous Norman Castle, are already well chronicled and familiar to everyone, and it is possible to be conducted over them by a Custodian, who will be pleased to sell you an Official Guide. The nineteenth-century fortifications, however, are practically unknown, they are officially closed to the public, and there are no Custodians or Official Guides. This is most unfortunate, for they are of great interest and are historically important as an example of a most ingenious type of defence.

These nineteenth-century fortifications occupy the hill on the opposite side of the town to the Castle, known as the Western Heights (see plan). The hill was first fortified in 1779 during the war with America, France, Spain and Holland, but the defences were only in the form of earthworks and cannons. Nothing further was done until the war with France in 1793, following the Revolution of four years earlier. Napoleon was threatening to invade the country, and a plan was drawn up to make the Western Heights the largest and strongest piece of fortification in the country, big enough to house a large section of the British Army in hiding; for whilst the fortification was never expected to be directly assaulted from the sea, it was intended to be used as a base for attacking Napoleon's army in the rear, after it had already effected a landing, presumably somewhere between Hythe and Rye. Because of this curious stratagem, the colossal expenditure incurred in the erection of these fortifications, and the Martello Towers and the Royal Military Canal, which are both contemporary, was not easily accepted by people of any intelligence. William Cobbett, who had some knowledge of military fortification, having made a report on those in Canada, says in his 'Rural Rides,' that when he visited the Western Heights in 1823 a 'couple of square miles or more were hollowed like a honeycomb, . . . that either madness the most humiliating, or profligacy the most scandalous must have been at work here for years.' The defences were only half completed when he saw them, yet he estimated that the quantity of brick buried in the hill would have built a cottage for every labourer in Kent and Sussex. This last remark includes a word illustrating a most important development in the design of fortifications. Whereas the Norman Castle advertises its presence by being perched on a hill and having a dramatic skyline, the Napoleonic



3|4 3, *looking south over the town and harbour from the drop redoubt.*
5|6 4, *the drop redoubt. 5 and 6, the Grand Shaft.*

fortifications are buried in their hill and are invisible at a distance, except for the unnatural angularity of the hilltop.

The plan that was drawn up for the fortification of the Western Heights was based on the principles of fortification as perfected by Vauban, the famous seventeenth-century French military engineer, and on recent experience in the North American continent. In outline, they consisted of a *citadel** on the highest ground, connected by *lines* and outlying *bastions* to a *redoubt* overlooking the town. The Norman Castle was to be strengthened against heavy bombardment, and reinforced on its north side by the construction of Fort Burgoyne and two outlying *caponnieres* (see plan). It was also proposed that the Western Heights should be connected to the Castle by a *line* cut straight across the intervening valley, through the centre of the town, but as this would have involved the demolition of a great deal of public property, it was abandoned until such time as it would become essential. This last was the only part of the plan that was never completed, the remainder being constructed in two stages.

The first stage of construction was carried out prior to, and during the Napoleonic wars, c. 1790–1814, and included the building of the Grand Shaft, the Grand Shaft Barracks, the Drop Redoubt, parts of the Citadel, parts of the connecting Lines and the strengthening of the Castle. The latter operation was achieved by deepening the Castle moats to twice their original depth, and piling up the material obtained to form earthworks and batteries parallel with the curtain walls. The towers in the curtain walls were filled up solid and levelled to provide gun platforms, and the remainder of the surplus material was banked up either side of the walls for additional protection. The Constable's Gateway was spoilt by the addition of Victorian bridges, and the Keep was roofed over with bomb-proof brick vaults; the whole Castle was badly damaged. In 1802 a Spur was thrown out to the north with a bomb-proof guardroom, passages and hanging doors, and the *ravelin* was cut to its present slope. On the Western Heights construction was in progress on the Grand Shaft.

The Grand Shaft, 5 and 6, which provides direct communication between the Heights and the town, is a most interesting piece of construction, and deserves description. From the square of the Grand Shaft Barracks, 59 steps descend to the bottom of a circular bowl excavated in the top of the cliff. From here a further 140 steps descend in a spiral around a vertical, circular, brick faced shaft, open at the top, which is connected to Snargate Street by a horizontal tunnel emerging at the bottom of the cliff face. There are three sets of spiral steps around the brick well, which are lit by windows pierced in the side of the well, and which were intended for officers and their ladies, 'women,' and soldiers. These three classes of society had, however, to unite in the use of the steps at the top of the Shaft, and the horizontal tunnel at the bottom. In 1812 Mr. Leath, of Walmer, rode a horse up them for a wager. It was completed in 1802 to the design of Sir Thomas Hyde Page, military engineer, and Ireland said of it in his History of Kent published in 1829, 'such a union of elegance and convenience might have reflected credit even upon the genius of Sir Christopher Wren, at one combining the gracefulness of that stupendous vestige of architectural skill, the Monument of London, with the greatest simplicity and general accommodation.'

To the rear of the Grand Shaft, and contemporary with it, are the Grand Shaft Barracks, housing 1,200 men. At the same time as the barracks, about 1803, a Military Hospital was constructed near the Archcliffe Gate. From the barracks a long flight of steps rises to the Drop Redoubt, 4, constructed in 1808 at the extreme eastern end of the Heights, and commanding the whole of the valley, town and harbour. From here the official salutes were fired for the arrival of Royalty, and a flag was always kept flying. During the excavations for the Redoubt, the foundations of a Roman Pharos were unearthed. Its twin is still extant within the Castle walls, and is acknowledged as the oldest building in the country. With the aid of these two lighthouses, constructed in A.D. 43, the Roman galleys were able to cross the Straits of Dover by night, and by setting a course directly between the two beacons, could proceed straight up the River Dour. Thus were the links of the Roman Empire maintained unbroken throughout the dark hours.

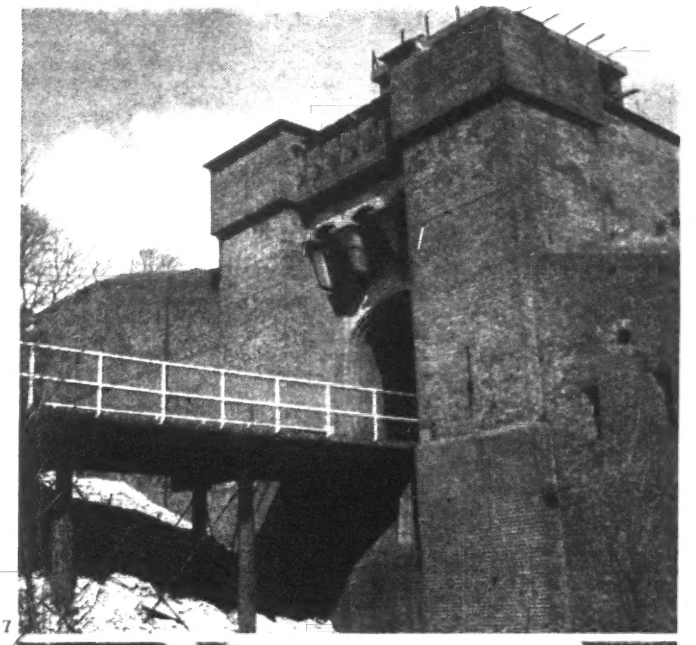
The Citadel occupies the highest ground on the Heights, some hundred feet higher than the Redoubt, and was the stronghold of the fortress, fulfilling the same function as the Norman castle keep. It consists of masked batteries, a large parade ground surrounded by storehouses and barracks, and a well 420 feet deep. The Lines and Outlying Bastions connecting the Citadel to the Redoubt were in course of construction in 1814, when the armistice with France was signed. All work on the Heights was stopped, and for nearly forty years the hill was riddled with a meaningless honeycomb until about the year 1850 when the Commission for the Defences of the United Kingdom recommended a continuation of the work, in view of the impending Unification of Germany, and the threat of Napoleon III.

The second stage included the completion of the North and South Lines, the formation of the ground between the Citadel and the Drop Redoubt, the construction of barracks and offices, and the completion of the Western Outworks, 9.

It was essential that the Citadel should have direct vision of the Redoubt; this meant removing the whole of the top of the hill, which was found useful to form earthworks and steep escarpments on the slopes of the hill, giving to the Heights a complicated angular silhouette.

Nearly four miles of Lines, 3 and 8, equivalent to the medieval moat, were constructed, linking the Redoubt to the Citadel, and these in turn to the cliff face. The Lines were hewn into the solid chalk, and usually have brick linings at least 18 inches thick, or alternatively flint linings coursed in brickwork, 10. They vary from between 30–50 feet deep, and are usually 30 feet wide. Wherever they turn an angle, deep wells prevent direct passage along the floor of the moat; these wells are overlooked by galleries running behind the moat walls, from which musket fire could be directed down either of the angles formed by the moat. The North Centre Bastion, 4, carried out the same function as towers in the curtain wall of a medieval castle. It provided transverse fire along the line of the fortifications, and prevented the enemy from approaching too close by means of

* For explanation of military terms see Glossary at end.



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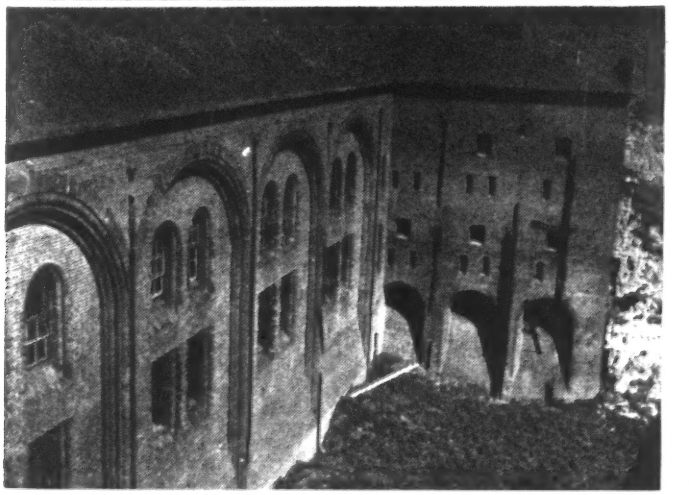

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7, *Archcliffe Gate*. 8, *brick-walled earthworks*. 9, *casemates in the western outworks*.

parallels and *traverses*, to the main line of defence. The Lines have *casemates* formed behind parts of their walls, and at salient angles *caponnieres* are thrust out into the ditch. The hilltop is criss-crossed with these lines which run over it, and up and down its slopes, apparently without any regard for its contours; indeed at one place, a line descends two hundred feet at 45 degrees, turns an acute angle at the bottom, and laboriously ascends again. The scaffolding, stagings and labour required to excavate these enormous ditches, and the production and transport of the material required to face them, must have constituted a major engineering task.

Included in the second stage was additional troop accommodation; this resulted in the construction of the bomb-proof South Front Barracks, 12 and 13, in 1860. A huge trench was excavated in the slopes of the hill facing the sea. The Barracks were then built along the centre of this trench; the various floor levels being connected to the hill behind, by a series of cast iron bridges and galleries. The bomb-proof structure of the building took the form of a series of very thick brick cross walls, roofed over with massive brick barrel vaults covered with earth. This structure is expressed externally, and has resulted in a building curiously reminiscent of a Florentine palazzo. Just above the barracks are the Married Soldiers Quarters built in 1859.

Within the walls of the Citadel, an Officers Mess was constructed. This took the form of a long red brick building with stone dressings, designed in a kind of mock Tudor country house style, with a central hall and ceremonial staircase. The Mess has a wonderful view over the Channel, and is approached by a steep sweeping symmetrical drive, enclosing a central staircase. The whole of the Heights and the Citadel were supplied with water by steam power.

The Citadel was considered to be exposed on the western flank, so the Western Outworks were constructed. They have a wedge-shaped plan and culminate at the point of the wedge in a double *caponniere*, 9, flanked on either side by *casemates*, and surrounded by two semi-circular ditches, the whole being designed symmetrically about a centre line. The eastern entrance to the Citadel was provided with a massive gateway constructed with battered walls, and vaguely reminiscent of a pylon of an Egyptian temple.

There are two vehicular approaches to the Heights. From the south, a long winding road from the Ropewalk passes the South Front Barracks, and enters the Fortifications through the Archcliffe Gate, 7, a forbidding entrance designed in a pseudo medieval manner. From the north a steep hill ascends from Worthington Street; at the summit are traffic lights, the next section of the road being only wide enough for single line traffic. The road turns sharp left, passes over a deep moat by means of a bridge, turns sharp left again and then right, passes over another deep moat, enters a narrow tunnel, guarded by a sliding door, turns sharp left and then right and emerges into a deep cutting, surely an approach worthy of this impregnable position.

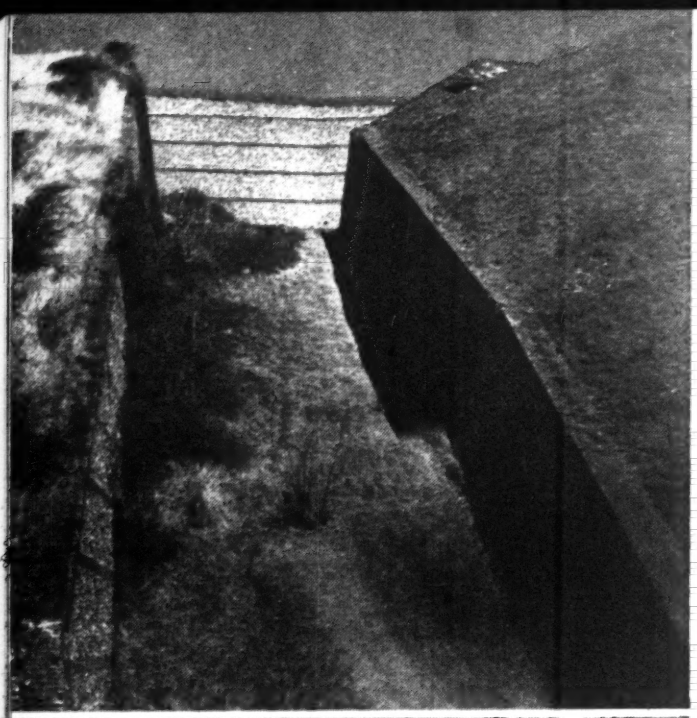
Enclosed within the boundaries of these fortifications are two places of worship. All that remains of the Church of the Knights Templars is the foundations in the form of a circular nave and a rectangular chancel; here King John is reputed to have made subjection to Pandulph the Pope's Legate in the year 1213. On the opposite side of the road is a small military chapel with a bell turret, built about 1857 in the Church Commissioners Gothick, and recently converted into a storehouse.

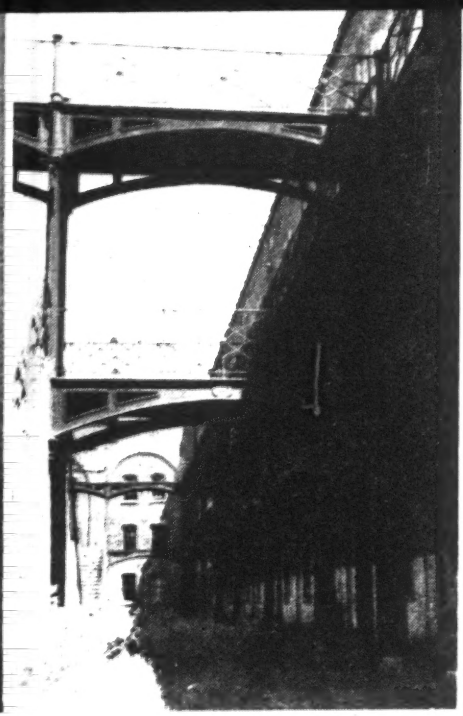
Over at the Castle, work was in hand on two projects. The first was the large Officers Quarters built within the castle walls, overlooking the sea. It was constructed in 1857 of grey Kentish ragstone in the usual military medieval and cost £50,000, of which £10,000 was spent in preparing the site. The other was the construction of Fort George, later known as Fort Burgoyne, in 1861. The curtain walls of the Castle are incomplete on the north side, and are supplemented with earthworks. To reinforce these, it was decided to construct the Fort with two flanking wing redoubts, connected by ditches, overlooking the sea and the town. The Fort itself looks north over the Downs. Bomb-proof *casemates* were built to accommodate 230 men, and *caponnieres* to house 24 guns with another 35 guns on the *terre-pleine*, and nine more in the wings.

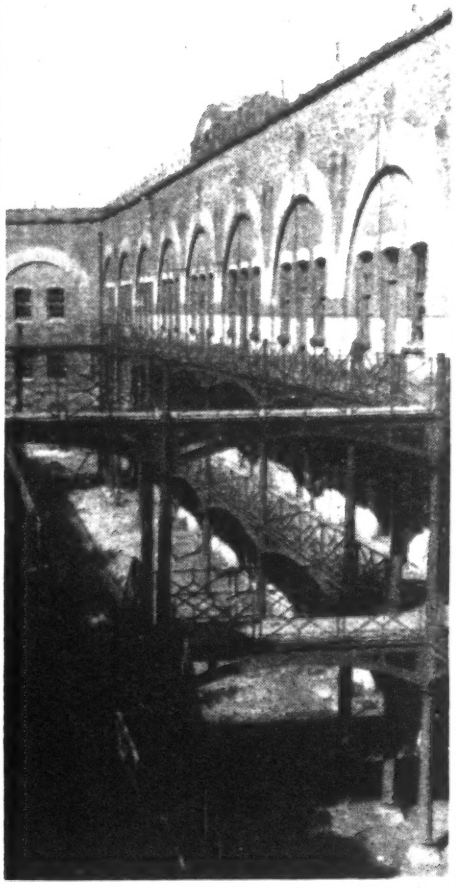
With the building of Fort Burgoyne, the whole plan had been completed. The Western Heights could hide 4,000 men and the Castle could house 3,000 men, and Dover became one of the centres of concentration of the British Army. It was during the following fifty years that the town expanded and passed through its most prosperous phase. Since the resumption of work about 1850, the fortifications had cost the nation about £700,000, which at today's rate of exchange would be equivalent to about six million. It is a curious twist of fate, that both of the military ventures at Dover have proved ghastly failures. The Admiralty Harbour, the largest artificial harbour in the world, costing £4 million in 1909 when it was completed, was abandoned in 1920 by the Admiralty, because of its increasingly vulnerable position. The Military Fortifications, the strongest in the country, completed about 1860, were abandoned in 1929 because the barrack accommodation was condemned. Whereas the harbour remains useful for other purposes, the fortifications have only once been of any military value. That was in 1941, when Admiral Ramsey fortified the Heights and the Castle, so that even if the harbour, town and country to the rear of Dover should be overrun by a German invasion, these two positions should remain in British hands to the last, rendering the port useless to German shipping.

After the war the Castle was returned to the Ministry of Works, except that part always occupied by the Army, and the Heights were evacuated and allowed to fall into decay. A few years ago, with the acute housing shortage, some of the Grand Shaft Barracks and the Married Soldiers Quarters were renovated and put to a new use. Four years ago with the acute shortage of prison accommodation the Citadel was chosen as an ideal location for a new 'House of Correction,' being entirely surrounded by deep moats and already constructed. The casemates provided excellent cells, and the moats which were illuminated at night provided impassable obstacles. Recently, the Prison Commissioners relinquished the Citadel to Her Majesty's Borstal Institution. The staff of the Institution are housed in a newly built estate of asbestos cement prefabricated bungalows, which form a crown of white subtopia to the yellow-grey fortress.

Officially the War Department







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11 | 13

10, *approach to the lines of the western outworks.* 11, *the Grand Shaft.* 12, 13, *the South Front Barracks.*

own the Western Heights, and notices prohibiting public access to them are displayed on all the approaches; people wishing to view the fortifications must obtain a military pass from the Garrison Adjutant at the Castle. In practice, however, the public perambulates at will over and through the fortifications, except the Citadel, which is closed except to duly authorized persons. In the evenings, and at weekends, children may be seen clambering in and out of the moats, roaming through the deserted barracks, scrawling on the walls, and lighting bonfires wherever they have the chance. At the deserted South Front Barracks, children unhindered have recently smashed all the cast iron balustrading, broken up the timber floors, and thrown down the York stone copings. Most of the fortifications are, however, still structurally sound, but decay is developing fast. Already sections of the facings to the moats have collapsed, brick arches are cracking and dropping, there is little pointing left anywhere, and two of the three spiral staircases in the Grand Shaft are closed with barbed wire. At the Castle, the Ministry of Works have recently extensively repaired the Napoleonic Spur Caponniere, but on the Western Heights, where there are infinitely grander Napoleonic fortifications, no repairs are being undertaken. If the War Department cannot afford to repair them, and have no further interest there, they should relinquish them to the Ministry of Works, for they are undoubtedly as historically important as the Norman Castle, and will one day be recognized as such.

Glossary

Bastion: A projecting work at the angle or in the line of a fortification, to bring flanking fire on the assailants.

Caponniere: A passage or bastion projecting from the main wall of a redoubt or citadel into the surrounding ditch; developed by Albert Durer, to bring flanking fire on assailants.

Casemate: A bomb-proof vault in a fortress housing some of the garrison or guns, and constructed to form part of its walls facing into a ditch.

Citadel: A stronghold or fortress used as a storehouse and centre of a defensive organization, and as a refuge for final retreat.

Embrasure: The opening in a wall to fire guns through, usually with bevelled sides for a wide angle of fire.

Fosse: A ditch around a fortification, usually filled with water.

Glacis: An open plain in front of a fortification, where assailants would be open to fire.

Line: A deep ditch or moat.

Ravelin: A detached work with a parapet and ditch, forming a salient angle in front of the main fortification.

Redoubt: A detached outwork of great strength, able to fire in any direction, without re-entrant angles, and without flanking defences.

Terreplein: The upper surface of a rampart where guns are mounted.

Traverses and parallels: The traverse is a zig-zag trench used by assailants for approaching a besieged fortress so that fire could not be directed down its length; a series of 'parallel' trenches were constructed parallel to the fortification as the traverse trench proceeded, to accommodate guards for the excavators of the traverse. This method of attack introduced by Vauban in 1673.

Ian Nairn

SWISS REVIVAL

RECENT ARCHITECTURE IN GERMAN SWITZERLAND

It was only in the last few months of his life that the world became aware of the work of the late Hans Hofmann, or began to suspect that he might be part of a major architectural revival in German-speaking Switzerland. In the article below, Ian Nairn distinguishes the features—and the lessons—of that revival; a parallel study of French Switzerland will appear in a forthcoming issue of the AR, and recent work from both zones will be seen at an RIBA exhibition during 'Swiss Week' in October.

'The Swiss have had four hundred years of peace and what have they produced?—cuckoo clocks'

The Third Man, 1948

A familiar gibe, this one, peddled as conversational small change in one form or another about any aspect of Swiss art: how neat, how clean, how worthy, how irretrievably frigid and dull. As far as architecture is concerned, the taunt has come home to roost in an ironic way in the last ten years, for the architectural problem of a dense highly industrialized society has become something very like the cuckoo-clock problem, or at least the Swiss-watch problem. Mechanization, mass production and standardization have all set up the need for a set of beautifully finished and carefully assembled interlocking components—just the conditions that are needed for the manufacture of good watches.

Cleanness of line, neatness and precision have ceased to be just negative housewifely virtues: they have become the basis of this new type of architectural design. And where

other countries need all their energy to make some sort of acceptable standard of grammar and detailing out of the new vocabulary, with imagination either forgotten or loaded on to the building at the last minute with a vast gusty gesture,* the Swiss have been able to take the syntax for granted and hence have had creative energy to spare. At the same time, the years spent on careful landscaping applied to worthy but dull buildings have reaped their reward now that the buildings have become crisp, gay and elegant—the landscape foil is taken for granted, not applied as an extra; and, finally, for the first time in two hundred years Swiss volumes and masses have stopped being soggy and low-intensity, perhaps as a psychological reaction, perhaps as a natural consequence of the industrial forms, perhaps originally in emulation of Sweden: it would be silly to guess as result of a few weeks' architectural travelling. But however it has happened, all the numbers of the combination lock have come together at once, and Swiss architects have opened the door of the safe.

Or, to be accurate, one group of Swiss architects; this is still almost entirely a Zürich phenomenon. By and large French Switzerland builds in the lowest-common-denominator style familiar from *Europe Rebuilt*,† apart from Saugey's deft Genevois curtain walls, and the Ticino builds like Milan—i.e. slickly but without much feeling. Even in Basle, only seventy miles away, the results are merely competent but uninspired, like the work in an average German city, whilst Zürich has got the beginnings of a genuine industrial vernacular with each building not merely negatively acceptable but a positive addition to its surroundings.

What it is not, thank goodness, is a Zürich School, with masters, disciples and party lines. It is just a climate of opinion, and the three architects singled out especially here —Gisel, Schütz and Hofmann—are not leaders in any formal sense; they have never been connected and for all I know they may dislike each other's work. They are simply three good architects who between them represent the three qualities forming the numbers of the combination lock; Gisel the hard industrial geometry, Schütz the melting together of buildings and landscape, and Hofmann the imaginative use of industrial techniques. To some extent this article has to be a memorial as well as a chronicle; Hofmann died, aged sixty, at the end of 1957 when to judge by his latest buildings there seemed no limit to what he might have done, and no lack of patrons to employ him: jobs then in hand included a church, the head office of a big Zürich bank, a spa and the Swiss legation in New Delhi. If only one of the fuddy-duddies, old and young, that so bedevil architecture all over the world could have loaned him ten years of life!

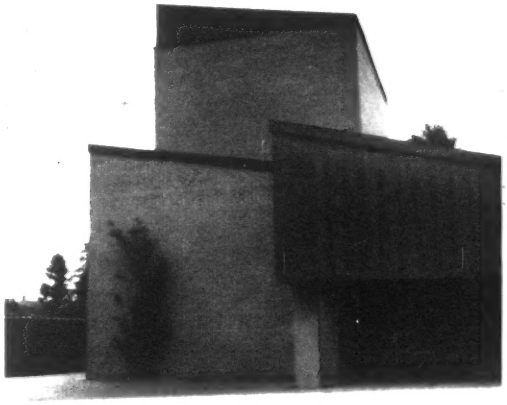
If anything has caused these trends to coalesce it is the universal competition system which keeps the profession toned up rather like liver salts—and how the profession needs it here—and the full, gimmick-free and *critical* presentation of new jobs in the Swiss magazines. But by whatever cause, several dozen architects in and around Zurich are producing buildings in this new hard colourful spirit; some of the results are shown in the following scrapbook and represent simply a few semi-casual journeys near the Zürichsee. Where they use clichés it is in the right way, i.e. simply as trademarks or parts of a design, not as the wholesale imitation of someone else's thought process, which

[*continued on page* 187

* The outstanding exceptions to this, as far as England is concerned, are, in my view, Powell and Moya and Chamberlin, Powell and Bon. But for the ordinary run of English building of this sort 'well-detailed' is about the highest praise that can be given to it.

† cf. *Europe Rebuilt:* 1946-56 by J. M. Richards; AR, March, 1957, pages 158-176.

· **Ernst Gisel.** *Hard crisp forms and a remarkable ability to compose interlocking masses are clear in any of Gisel's buildings. They are accompanied by a much rarer quality which cannot be caught in photographs: a sense of interlocking volumes in interior space. Gisel's open plans are not one aimless floating space but a set of compact spaces butting against one another. On a minor scale the qualities are shown in the northlights of his houses at Zumikon, V, and the mysterious piece of spatial penetration which is the entrance to the school at Thayngen, near Schaffhausen, 2. On a larger scale they form the continuous firm-bodied backwards and forwards rock of the masses at the Parktheater at Grenchen, 3–8. The facing materials are brick and bronze, the resemblance to Aalto's Seynatsalo is notable—yet it seems to be a genuine correspondence of feeling, not imitation, for both were building at the same time. Walking round the building (3–8 form a sequence) the complex shape is built up with such watertight forms that the memory apprehends what is going on at the other side of the block, although it can no longer be seen. It is the effect of walking around Hilversum Town Hall translated from smooth horizontals and verticals into crisp 30° and 60° angles. In the newer Letzi School in the western suburbs of Zurich Gisel's forms have become thicker and flatter though still hard, 9–12: the remarkable sense of interrelated volumes is still there and will doubtless remain whatever vocabulary he chooses to work with. This ability is rare enough in architecture; it would be unparalleled in town planning.*



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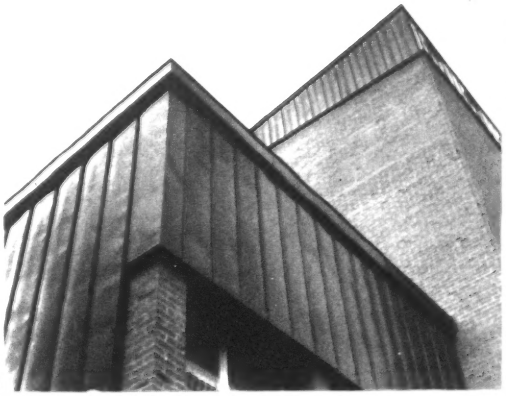

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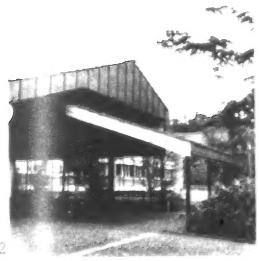

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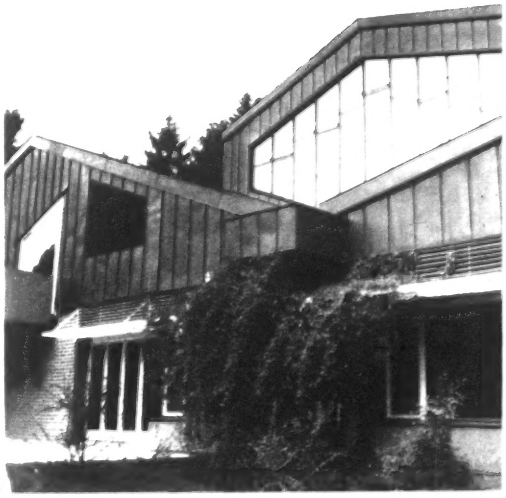

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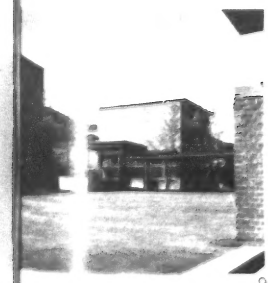

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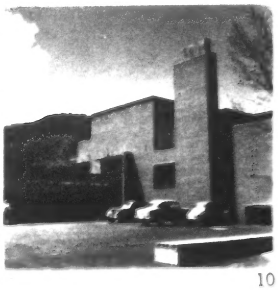

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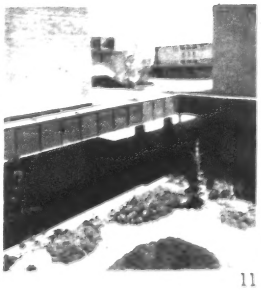

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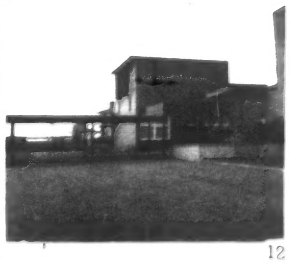

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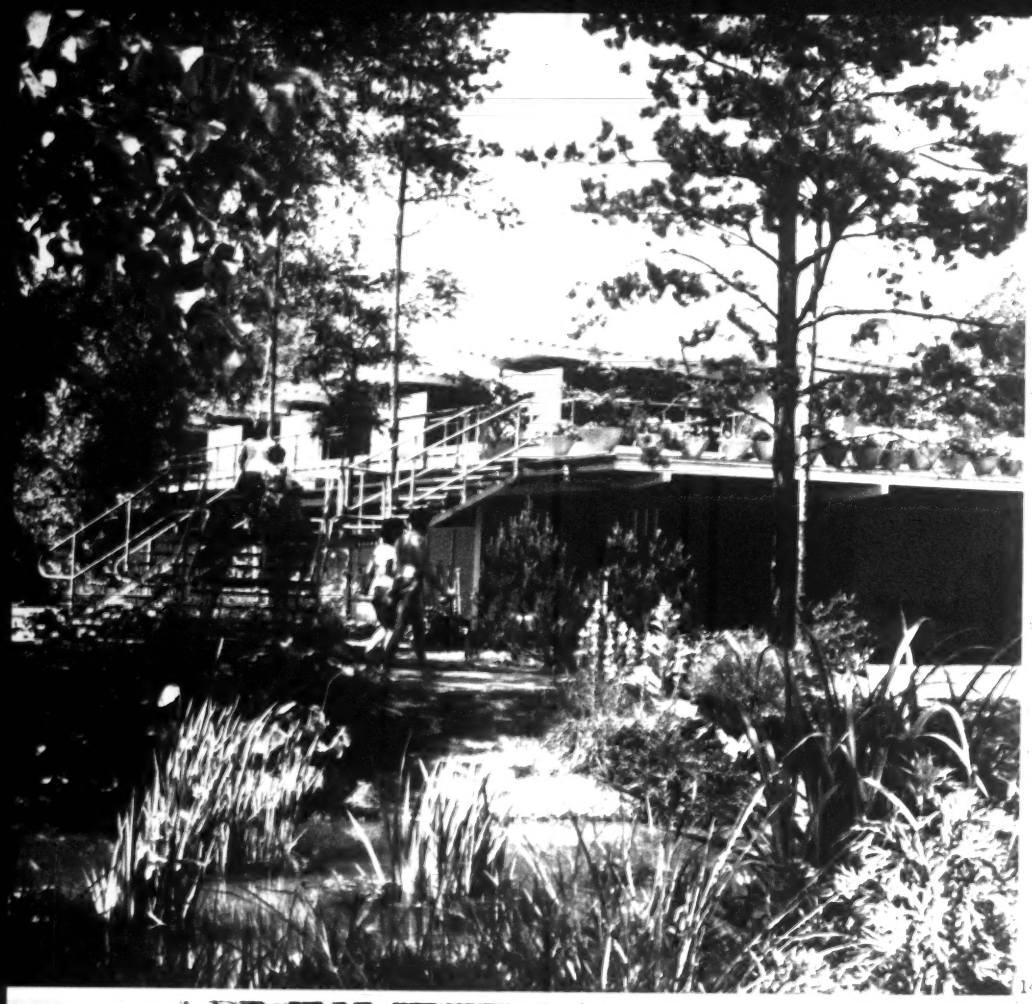

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Josef Schutz *Schutz's contribution is to have taken the customary tradition of good landscaping to the point where buildings and landscape are indivisible; where the planting is not a prettifying enrichment but an extension of the building itself. This was already clear in his church at Thayngen, 1950, 13, where the leaves and twigs become an additional skin to the wall, and is applied to a whole strip of ground instead of a single building in the famous Tiefenbrunnen bathing beach at Zurich, 14-16, where perhaps for the first time modern architecture has been able to look gay without looking makeshift as well. There is no telling where the landscaping ends and the pert bright buildings begin; no telling where deliberate effects end and the accidental arrangement of bathers and yellow and red chairs takes over. Yet the way in which this is done is not schmaltz or arty; it uses straightforward industrial forms in an industrial way for example the concrete mushrooms around the entrance, 15, or the honest asbestos-cement cladding above the restaurant, 16. And although 'landscaping' is used here with its traditional leafy meaning the method of design would be as valid for man-made surroundings whether the main roundabout of a town or the backyard of a huge industrial plant.*

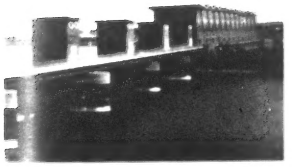
13

15

16

Hans Hofmann *Hofmann was a generation older than Gisel or Schutz and had previously built in the Swiss style of the 'thirties and 'forties (the Christian Science church near the Zurich Art Gallery, 1938). Then in 1954 he designed the exhibition hall for the Basle Industries Fair, 17, the detail very German but carried out with a sparkle and polish which German buildings rarely possess for example, in the sumptuous black and gold trim to the repeating pattern of staircase windows. Hofmann's mastering of the more direct interaction of buildings and their surroundings was shown in the hydro-electric dam and power station at Birsfelden, three miles upstream from Basle, 18–21. He had been landscape consultant for ten years before being asked to build and the result is a triumph of deliberate counterpoint between buildings and landscape: the zigzag roofs set off both the low hills to the east and the jagged Gothic skyline of Basle to the west. All outside walls are painted deep grey-green (a positive colour, not 'amenity green') with scarlet and white trim; the powerhouse is as full of colour inside as a Baroque church. A public way runs across the dam and Hofmann wanted to take it right through the powerhouse. This proved to be impossible, but visitors can look in from a high gallery reached by the spiral staircase, 19. The headquarters building for the Aluminium Gesellschaft on the north side of*

17



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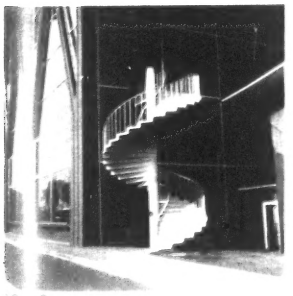

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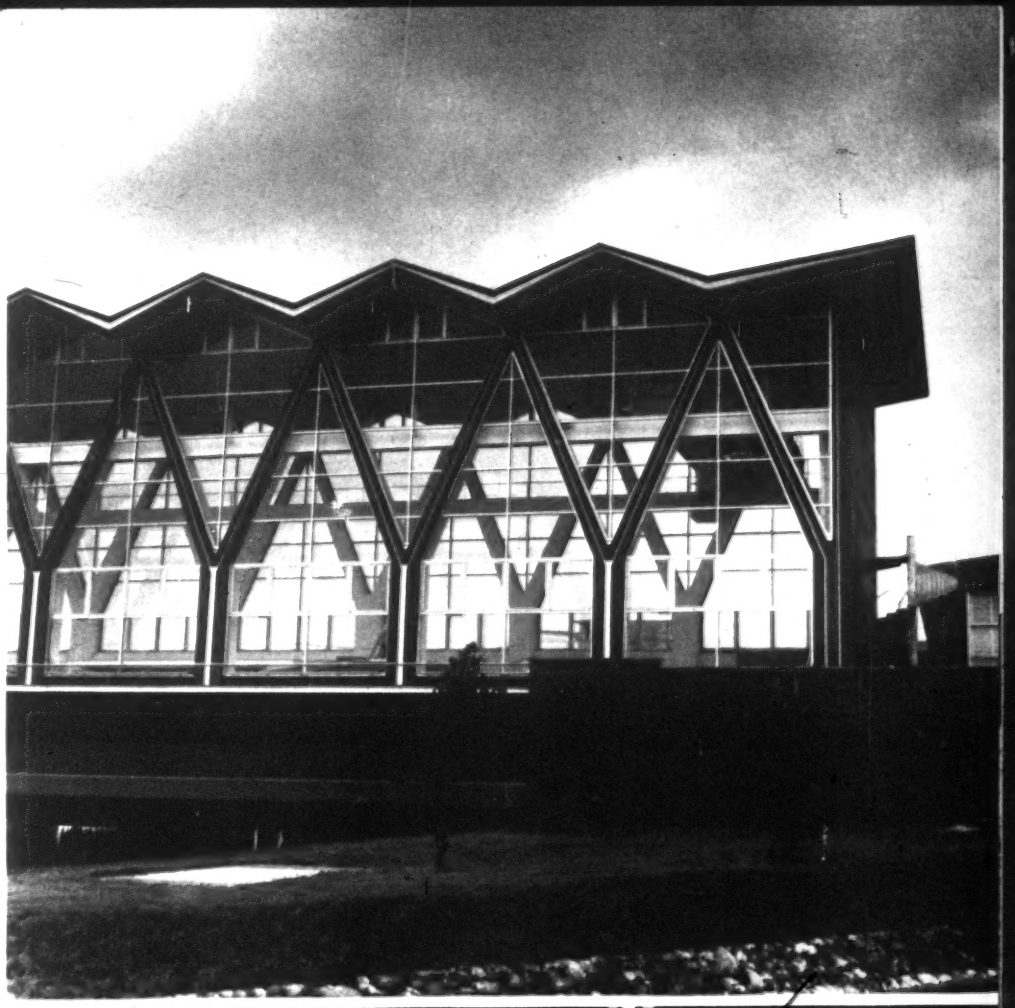

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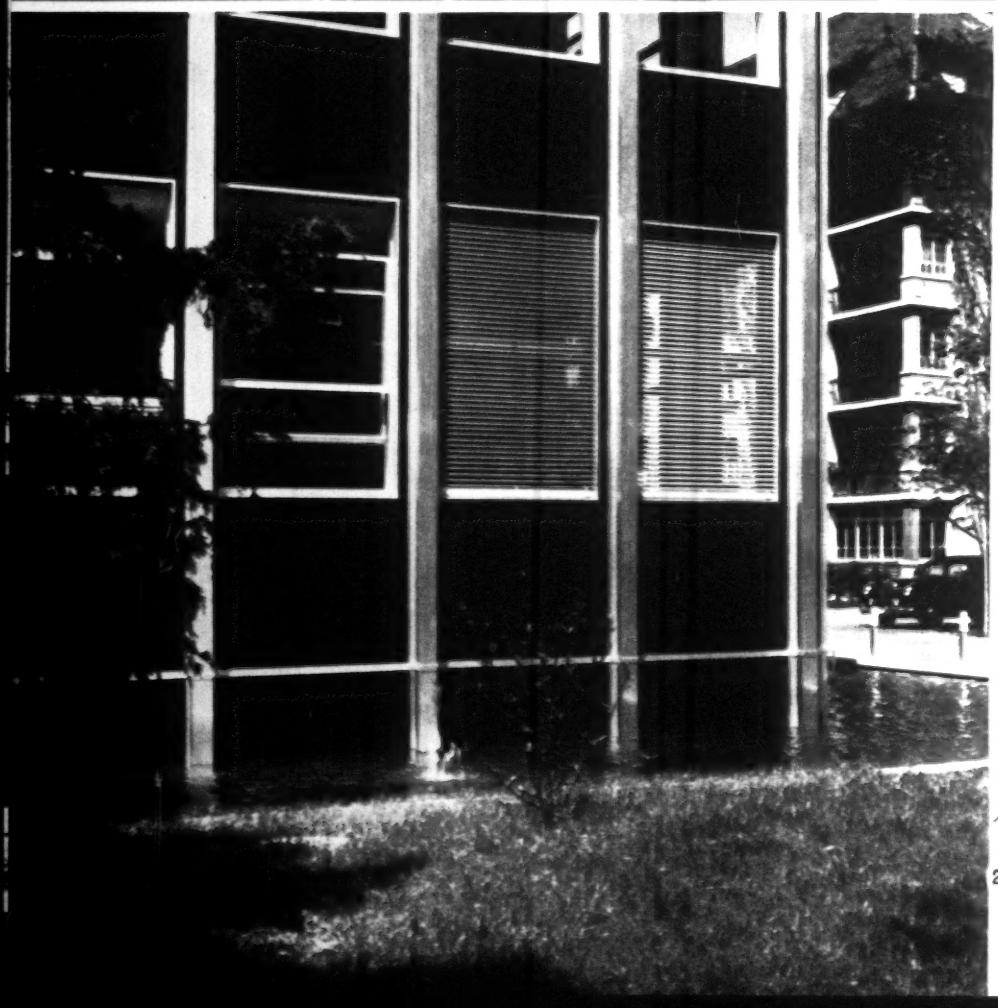
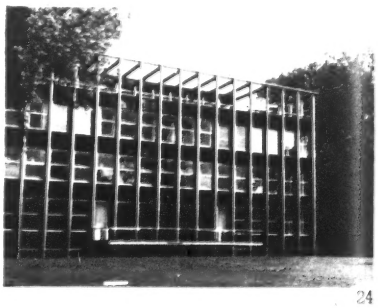


23

the Zurichsee is quite different again, 22–24: an urban tour-de-force built as an aluminium eyecatcher, and one which makes similar American efforts look very dowdy. The mullions are aluminium, the spandrel panels are deep blue anodized aluminium sheet, the uneven burn marks making a continuously changing pattern in the sunlight. Comparison with our own best curtain-walled offices brings out immediately the difference between an acceptable curtain wall and a really good one, a matter largely of degree of attention paid to the profiling — attention which it is much easier to give when the basic grammar is instinctive, as it is here. Hofmann's last building, a recreation centre on the Mythenquai at Zurich, 25, is as complex and interpenetrative as the Aluminium building was formal and sheathlike. Air and foliage flow through the simple two-level building which is almost a skeleton with open-air staircases and framing. It is the effect of the glazing of the Basle Industries Fair building in reverse: there, several different real planes are held by multiple reflections in the single plane of the window; here the traditional picture composition of building landscape in front air above, which the eye effectively reduces to one plane, has been mysteriously redistributed so that none of the elements is quite where it should be. We are back here into pure Soanic research into the meaning of space, though not in any esoteric way, stemming purely from the functional needs of the building. Perhaps the most remarkable thing is that one person should have designed all four buildings within five years — an imaginative range which most architects would have taken a lifetime to achieve.



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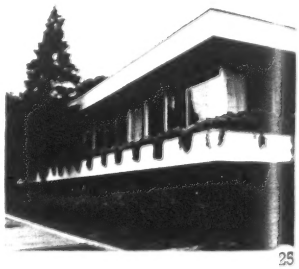
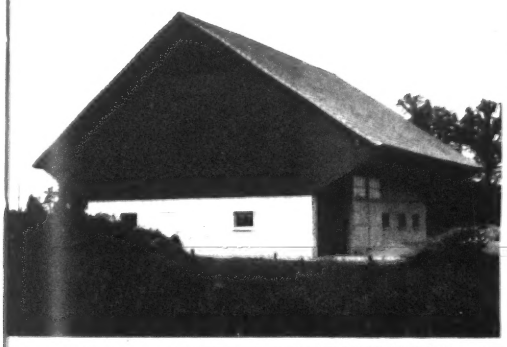
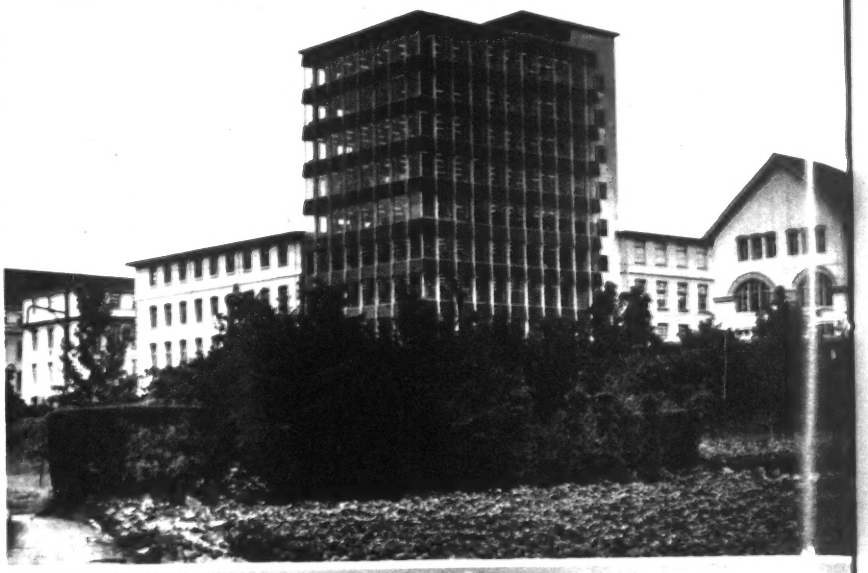
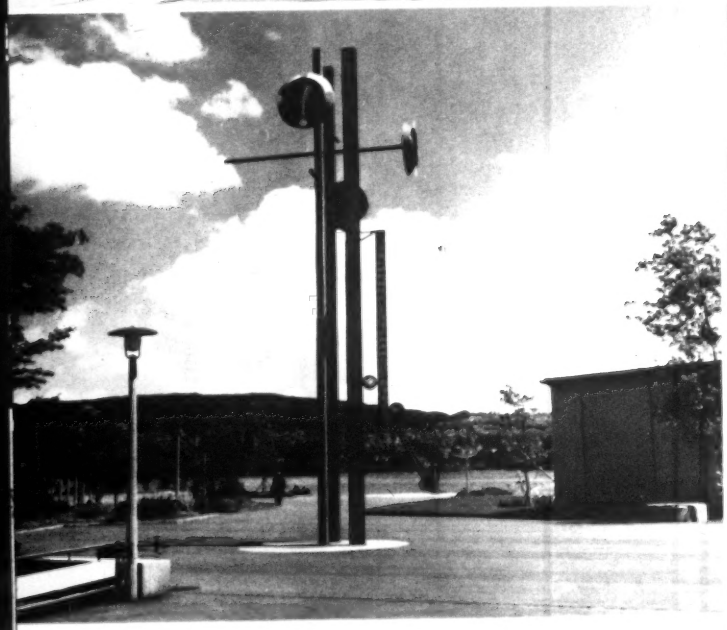


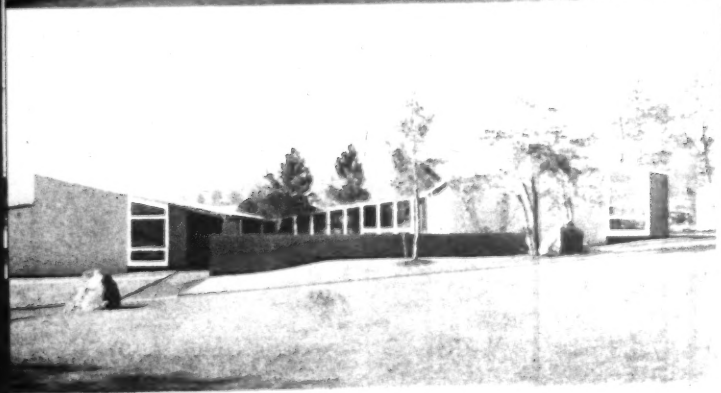
25

Vernacular: *A random selection of new buildings in and near Zurich. The surface styles and treatments are different, but the same crisp industrial spirit underlies all of them. 26, one of the sources of this newly-found facility with industrial forms – a new farm building, near Frauenfeld. 27, flats at Alstetten, 1954-5 (Zurich City Architects' Department), surface colours white, black and deep red; Swiss architecture has ceased to be just white paint, good taste and clever tree planting. 28 and 29, flats off the Bleicherweg, Zurich. Under-window panels dark blue; an acceptable modern building made into something more by piquant siting beside the canal – the deflected view of 29 is only one of several. 30, over page, office block in the Bahnhofstrasse, Zürich: attention to detail transforming an ordinary curtain wall block into a positive addition to the street. Under-wall and panels deep olive-green; mullions and cleaning rail aluminium. It must be admitted that it also has a low-pitched pantiled roof, just visible, a very queer partner to the cool elegance beneath. 31, new offices at the Braun Boveri factory at Baden; spandrel panels deep blue, the individual twist coming here from the uncompromising but subtle mixing of old and new and the outward cant given to each spandrel panel to throw off rainwater: This, barely visible in photographs, gives in the flesh a perceptible change in outline, worth exploiting further. 32, bathing beach on the Mythenquai, Zürich (Hans*









Hubacher, 1957), clearly inspired by the Tiefenbrunnen, and none the worse for that – not a slavish copy but someone else's variation on the same theme. 33, church at Oppikon, near Zurich airport: the unexpected case of the imitation being built before the original Hofmann's design for the church at Sihlfeld. 34, school at Alstetten: Gisel's style of brickwork and angular rooflines but again interpreted rather than imitated. The style is exactly suited to a multiplicity of separate elements, just as the elegant curtain wall of 30 is perfectly suited to an urbane continuous street line. 35, 36, school at Baden. Though deceptively simple, this is almost the best example of what this new Swiss idiom can do for the ordinary building programme. It is simply three pitched-roof classroom units on a steeply sloping site, linked by planting and covered ways and forming a tiny enclosure at the centre. 35, end walls are grey roughcast, side walls are rendered a dull smoky red; window trim is white.

Here undoubtedly is a vernacular gay, lively, not in the least affected and not in the least afraid of modern industrial techniques. Formal praise of this sort of building nearly always sounds inflated and an easy target for intellectual snobbery, yet in their way these Swiss buildings are just as important for the future of architecture as the post-war designs of Corb or Mies.

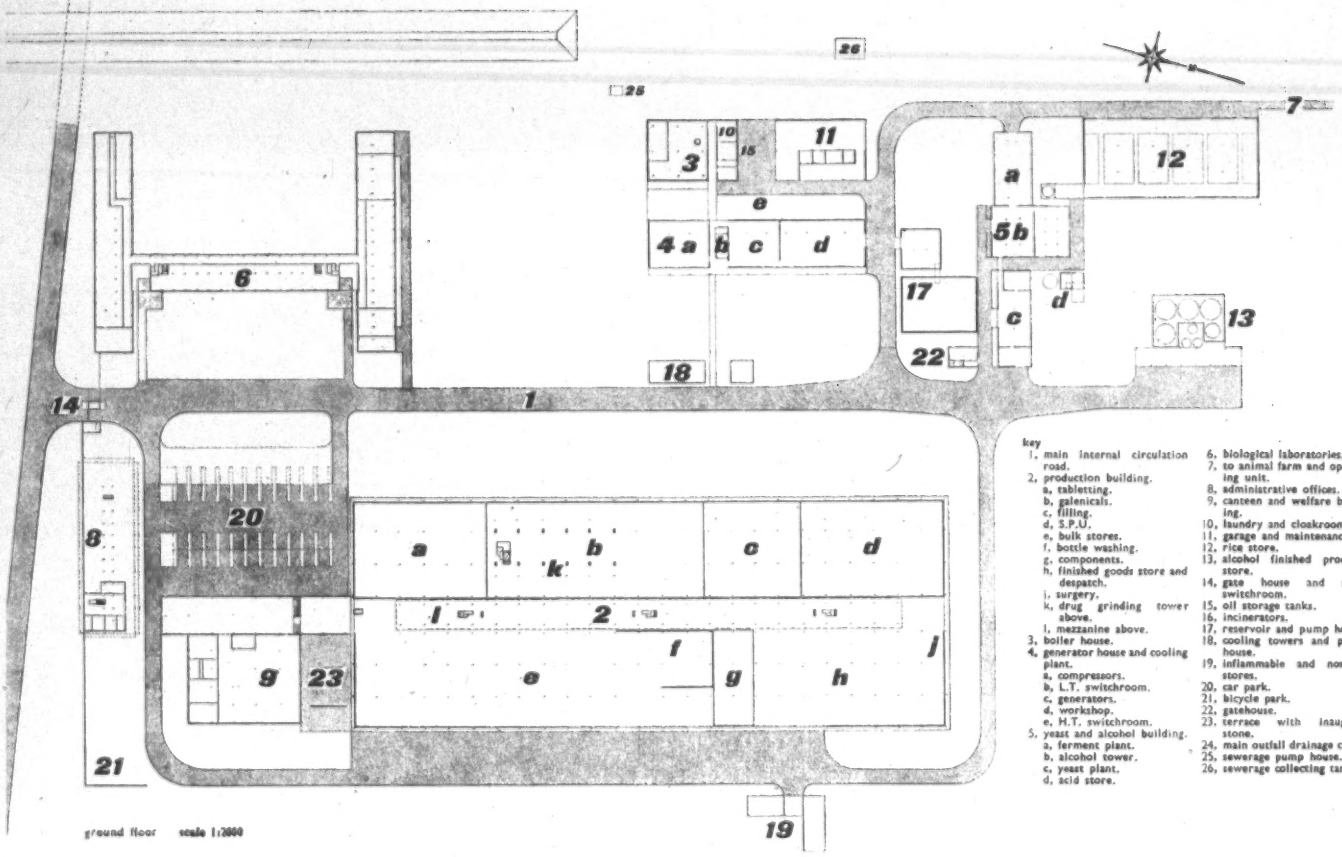
3 32
3 33
34 35

continued from page 180]

makes the whole building into a cliché; nor is there any attempt to push a cliché or way of design into a building type for which it is not suited, as some Americans seem to be trying to do with the curtain wall. Something like 'the style for the job' is emerging, yet with all the mini-styles informed by the same spirit—in other words Style in the true long-forgotten sense of the word.

Fashions are easy come and easy go these days; this Swiss style is not yet strong enough to absorb shifts in fashion (as gothic did) without being swamped by them. In particular, it would be folly for Zürchers to swap for the nearest available bait—at the moment shaggy mock-Corbusian plasticity or bloody-minded Italian brickwork. For once in the world, style, temperament and economic conditions are perfectly in step: this could be the beginning of a South German/Swiss/Austrian style as great as the Baroque, if it is left alone by the style-mongers for another ten years or so. And quite apart from all its local qualities, this new Swiss style has universal lessons for anyone building for the new industrial pattern in a crowded country (i.e. ourselves, Benelux, parts of W. Germany and Northern Italy): the pattern of clean industry, precision factories and electric power. We in England have played it squalid (Slough), genteel (New Town industrial estate) or jungly (grid substations) and are still no nearer a solution; if the new landscape is not to mean mutual destruction of both industrial and rural character, it must be fitted together just like the parts of that watch. It need not look like a Swiss watch, but it has got to follow the principles of sound watchmaking.

LABORATORIES AT RANGOON



ground floor scale 1:2000

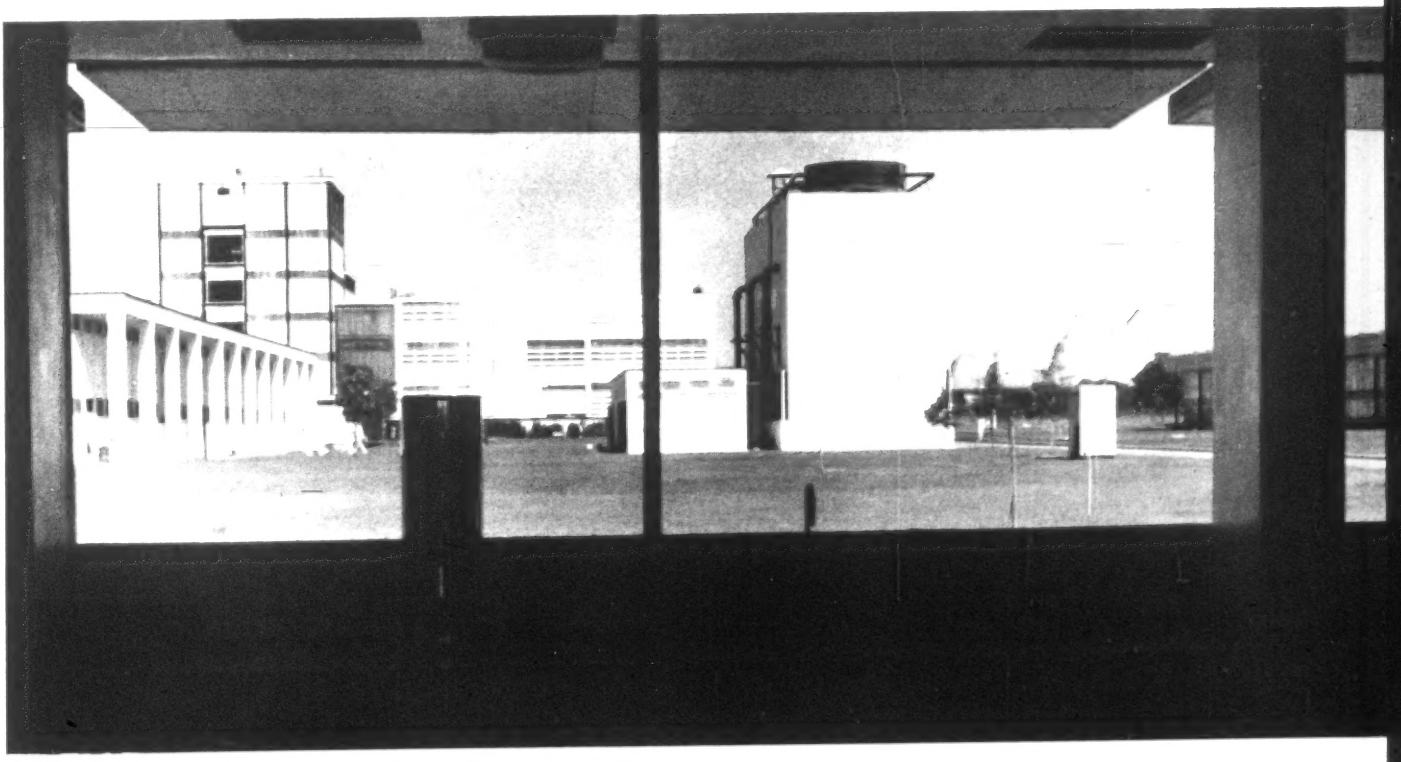
key

1, main internal circulation road.
2, production building.
a, tabletting.
b, galenicals.
c, filling.
d, S.P.U.
e, bulk stores.
f, bottle washing.
g, components.
h, finished goods store and despatch.
i, surgery.
k, drug grinding tower above.
l, mezzanine above.
3, boiler house.
4, generator house and cooling plant.
a, compressors.
b, L.T. switchroom.
c, generators.
d, workshop.
e, H.T. switchroom.
5, yeast and alcohol building.
a, ferment plant.
b, alcohol tower.
c, yeast plant.
d, acid store.
6, biological laboratories.
7, to animal farm and operating unit.
8, administrative offices.
9, canteen and welfare building.
10, laundry and cloakroom.
11, garage and maintenance.
12, rice store.
13, alcohol finished products store.
14, gate house and main switchroom.
15, oil storage tanks.
16, incinerators.
17, reservoir and pump house.
18, cooling towers and pump house.
19, inflammable and noxious stores.
20, car park.
21, bicycle park.
22, gatehouse.
23, terrace with inaugural stone.
24, main outfall drainage canal.
25, sewerage pump house.
26, sewerage collecting tank.

LABORATORIES AT RANGOON

ARCHITECTS | **JAMES CUBITT AND PARTNERS**

1, generator house, yeast and alcohol plant and cooling tower from the laboratories.



These buildings, which were previewed in the AR of November, 1955, form part of the Burma Industrial Development Plan and are in the area planned as an industrial zone, to the north of Rangoon. The site of 140 acres was chosen, in spite of the difficult subsoil conditions, because it was level, had good transport facilities and was close to Rangoon and the Hlaing River. There are three main sections; the main pharmaceutical production building, the alcohol and yeast vitamin plant, and the biological laboratories. In addition, there are the administration block and service and workshop buildings.

Owing to the scarcity of skilled labour, considerable use has been made of factory-made building elements and dry, precast construction. The layout allows for a future rail service to the rice store of the alcohol plant, and the site approach road can be developed into a double carriageway.

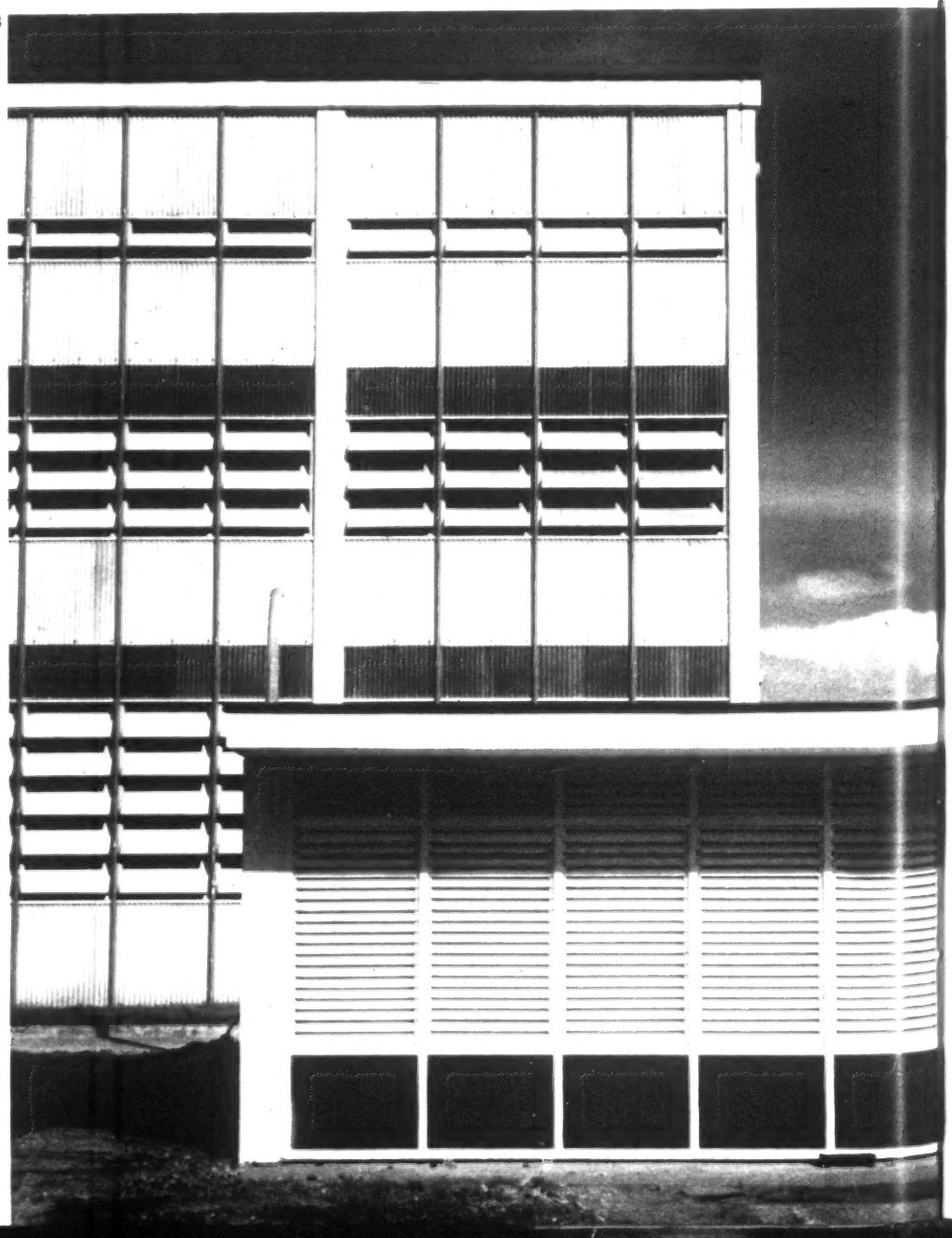
The alcohol and yeast plant is at the far end of the site. The main production building has been sited to allow for a future finished goods warehouse at its northern end. The length of these two buildings, of over 1,000 ft., and the need to expose the non-airconditioned half of the main production building to the prevailing wind determined its north-south axis. The boiler-house is between the alcohol plant and the main production

[continued on page 192

2

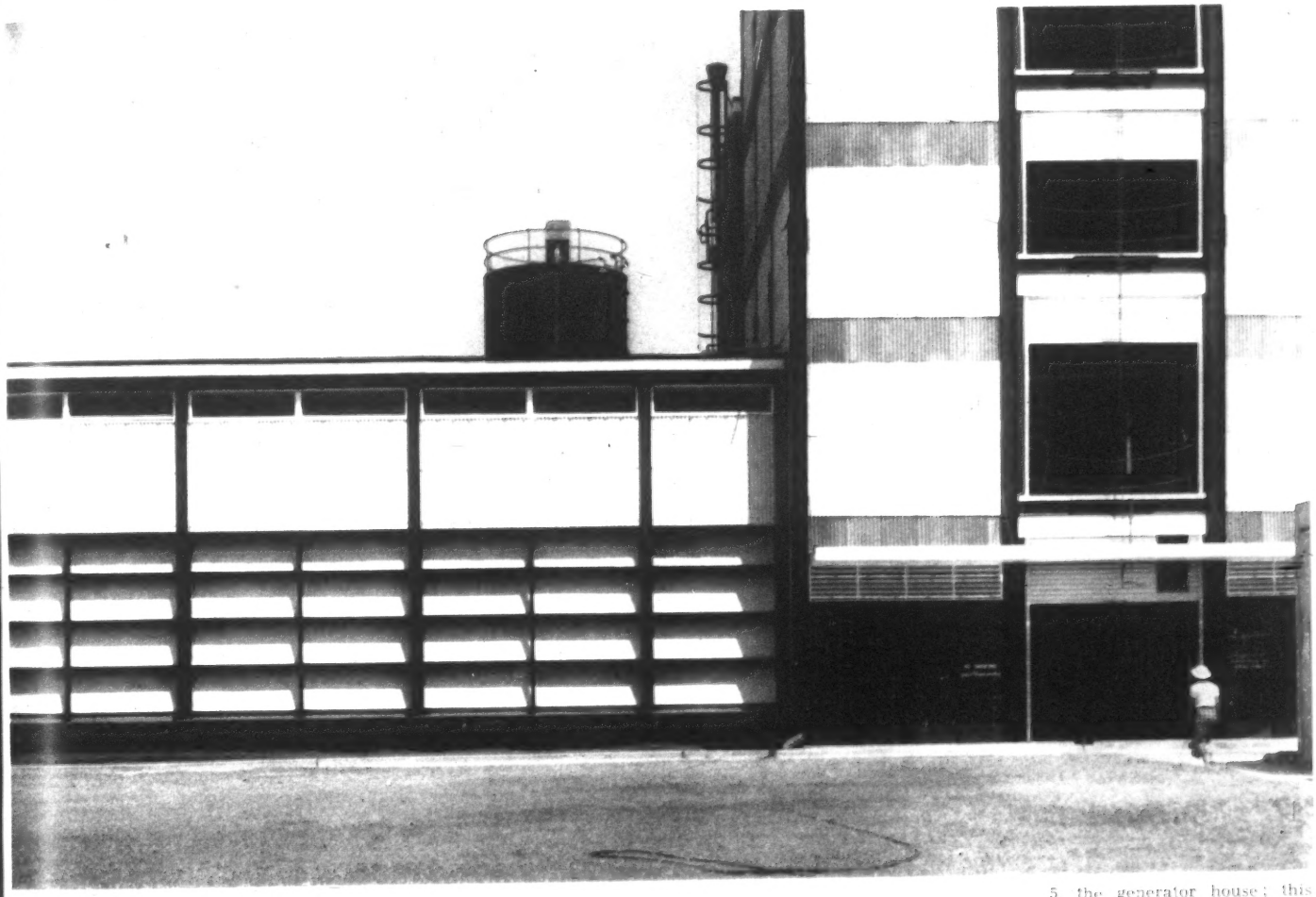
2. alcohol finished products store
3. the timber-louvred gatehouse with the yeast plant beyond

3

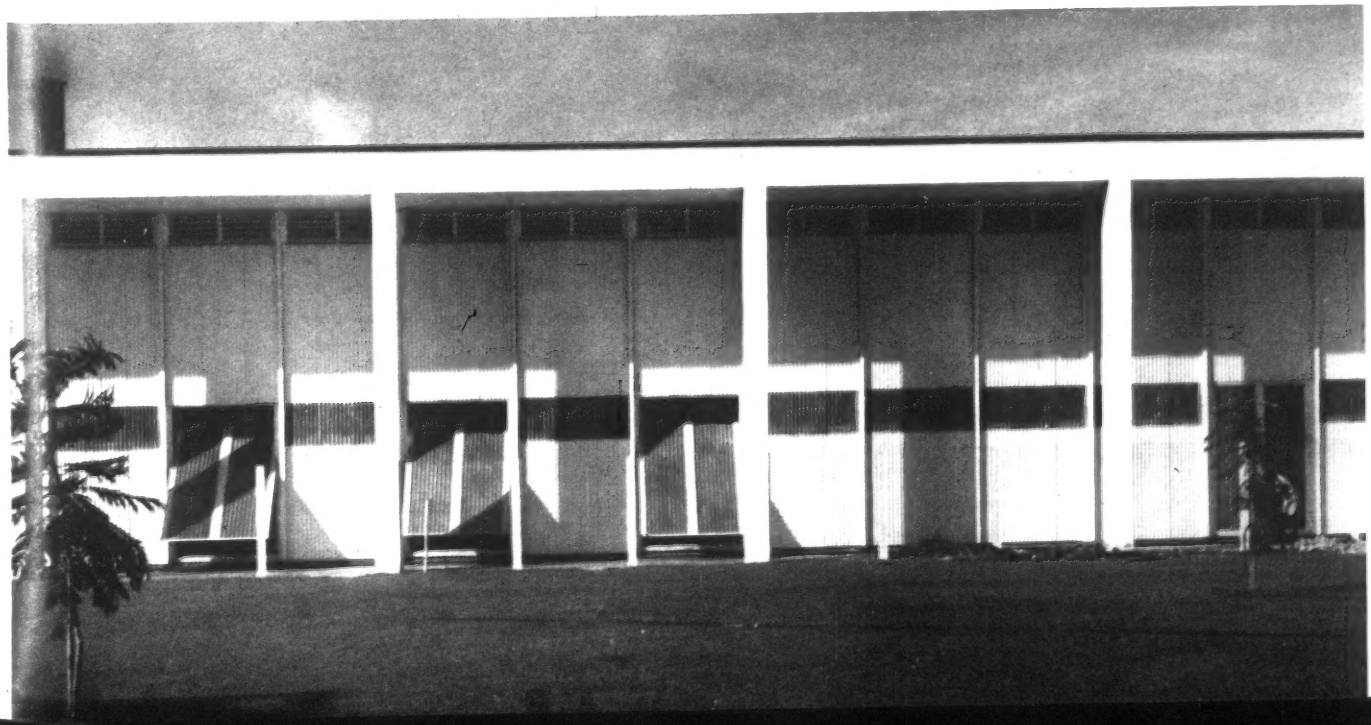


LABORATORIES AT RANGOON

4. the yeast plant and alcohol tower.



5. the generator house; this building and the yeast plant have wall infilling of corrugated asbestos and corrugated green fibreglass, with pressed metal louvres.



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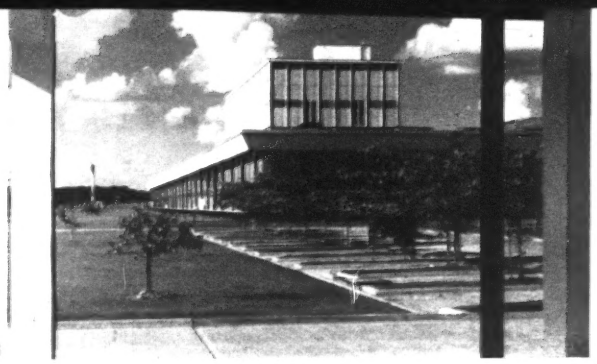
building, both of which it supplies with steam. All other services, such as water pump, filtration houses, refrigeration, gas and repair shops, were also grouped in this area. The animal farm and the incinerator for the biological laboratories were sited at the farthest end of the site. The biological institute, administration offices and canteen create an informal quadrangle, which the end of the main production building completes on a grand scale.

The main production building is constructed with a space frame built on the site from prefabricated units in the form of inverted pyramids. This deck is supported on a column grid 32 ft. by 24 ft. A complete bay of the roof was built up on the ground and hoisted into position by mobile crane. Each unit receives a precast aerated cement slab, treated with a screed and waterproof membrane, covered with solar tiles. The ceiling is formed by 4 ft. square asbestos sheets clipped to the tension members of the space frames. The building is clad externally with demountable aluminium double skin panels insulated internally with fibre glass.

The biological building is H-shaped in plan, the centre being of two storeys, with single-storey wings. The structure is designed in precast concrete units, with curtain walling protected by continuous sunbreakers. The administration building is raised off the ground on piloti, providing a shaded car park beneath, and the structure is similar to that of the biological institute.

There are 15 air-conditioning plants, which serve 725,000 cubic feet of space. Mechanical ventilation is provided for the rest of the building. A thermal electric installation provides the steam required for the manufacturing processes and part of the electricity needed. A triple cooling tower provides cooling water for process purposes and for the refrigeration plant condensers.



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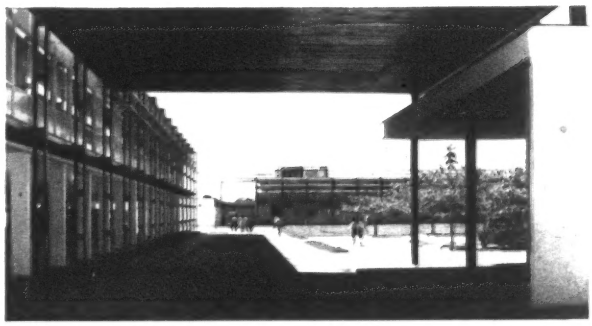

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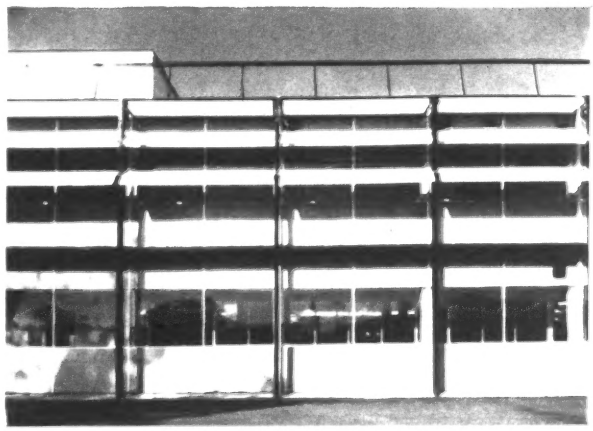

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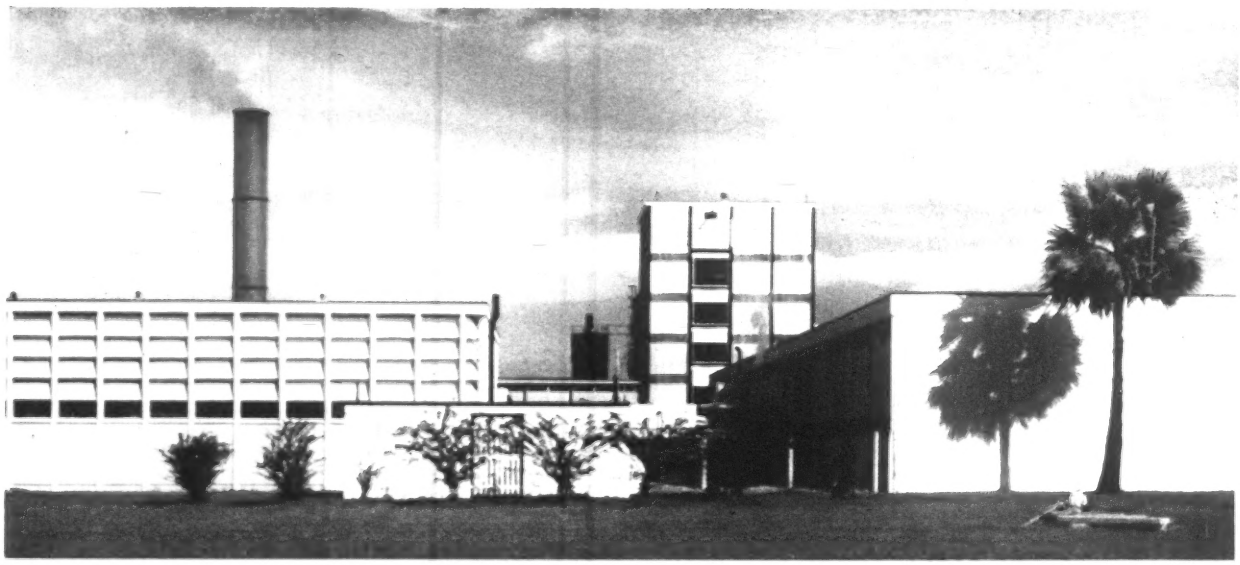
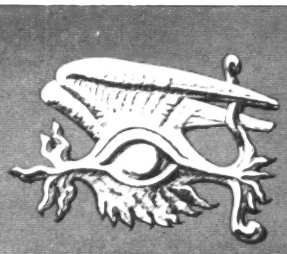


9

6. the main production building seen also on the cover.
7. the administrative offices with the biological laboratory beyond.
8. the biological laboratories.
9. the boiler and generator house, with the alcohol tower in the background.



the exploring eye

Although we continue to speak in English of castles 'commanding' a pass or a plain, the concept has become a very abstract one for most of us, and conjures up no visual image beyond an array of arrows in a nest of simplified contours in a school text-book. Most of the castles, fortresses and block-houses we know have been engulfed by towns or hanging woods, ringed by municipal gardens or bus-terminals, the sea has retreated from them or their estuaries have silted up. Rarely, as in a case like Lucca, can we see in Europe a set of walls whose function is manifest and comprehensible to us.

Map of Persia and adjoining territories, showing the location of the Palace of Ishak Pasha at DoguBayazit and the town of Bam.

It needs a desert or semi-desert landscape to restore the life and above all the sight-lines to our diagrammatic picture. Only there is the military prospect likely to have escaped obliteration by vegetation or buildings. Only there can one stand on the ramparts and appreciate fully the field of possible military operations below, the dead ground, the lie of the valleys, the distribution of water, the scalable and unscalable slopes. Inevitably, the Near and Middle East, which have been cavalry-and-castle terrain since before the time of Alexander the Great, provide the best known military prospects of this sort, and the writings of Robin Fedden and others have made the commanding aspects of Crusader castles like Krak, Margat and Chastel Pelerin familiar to the general student of architecture.

But a little farther East, the marches of Turkey and Persia, and the desert gates of Persia itself, provide a further sequence of commanding fortresses whose settings make their military functions clearer still. The two that form the subject of the illustrations inside this gatefold are the so-called Palace of Ishak Pasha, in Turkey, and the Oasis of Bam in Persia. The former overlooks the abandoned city of Old DoguBayazit in the province of Agri, in the extreme eastern part of Turkey, close to the frontiers of Russia and Persia. It lies in the shadow of Mount Ararat, but in spite of the scientists and mountaineers who visit the mountain the Palace of Ishak Pasha remains an almost unknown monument, and the fine panorama by Ara Guler is the first photograph of this impressive ruin to appear in any Western journal.

Bam, on the other hand, lies on the southern fringe of the Dasht-i-Lut, or Great Salt Desert in central Persia. It commands invasion and trade routes over the Kuh-i-Jamal Bariz behind it to the Persian Gulf, and eastwards into Afghanistan and what is now Pakistan, but its place in history is as the site of the last stand of the Zand dynasty in 1795, and as the refuge of the leaders of the Ismaili sect in 1840, before their flight to India. Its supposed impregnability no longer an asset, Bam is now little more than an oasis of gardens ringed by ruins, but its relationship to the desert waste beyond is still as striking to the eye in Costa's photographs as in actuality.

1

1, the fortified palace of Ishak Pasha commands, visibly, immense prospects over bleak and inhospitable terrain – the bleakness is not merely a visual effect, since it stands at an altitude of 6,000 feet, in what is reputed to be the coldest part of Turkey. It lies some eighty miles from the main overland trade route

ruler. The remains now visible on the site are much more recent, and some date from a restoration as late as 1775, under the Ishak Pasha who gave the place his name. As a result, Christian and Muslim, Armenian, Turkish and Persian motifs mingle in its decoration and make its dating difficult. However, its func-

or rather, was a walled town huddled around and partly enveloping an irregularly fortified hillock. From the ground, indeed, one might believe that the function of the castle was to dominate the town, it is only when one looks down from the castle that one sees at once that its function was to dominate the

tion, vaults, domes and arches fallen and half-fallen, broken stumps of walling, a skeleton townscape. But beyond it lies a fairly flourishing zone that one is tempted to call a garden suburb that has lost its city. Looking another way the eye commands a seemingly endless flatness, the nearer part

a visual effect, since it stands at an altitude of 6,000 feet, in what is reputed to be the coldest part of Turkey. It lies some eighty miles from the main overland trade route from central Turkey to northern Persia, and its original function is supposed to have been one of feudal command over the lands under Mount Ararat, rather than something strategic. Its origins as a fortified site are unknown, but presumably go back to a Christian Armenian

2, Bam is entirely different in character. Not a compact fort standing aloof from its town, it is

castle was to dominate the town, it is only when one looks down from the castle that one sees at once that its function was to dominate the plains beyond the city walls, and block access to the mountain passes.

3 and **4,** the views down from the fortress of Bam are among the most extraordinary in the world. In one direction one looks over the walls, still in fairly good order, to a fantastic jumble of domestic ruina-

to call a garden suburb that has lost its city. Looking another way the eye commands a seemingly endless flatness, the nearer part cultivated and the pattern of cultivation broken by the shards of walls and towers standing up in inexplicable irrelevance, the farther part running away into an immense and barren plain on which nothing could move without being seen.

[Research carried out by Anthony Rhodes]

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3

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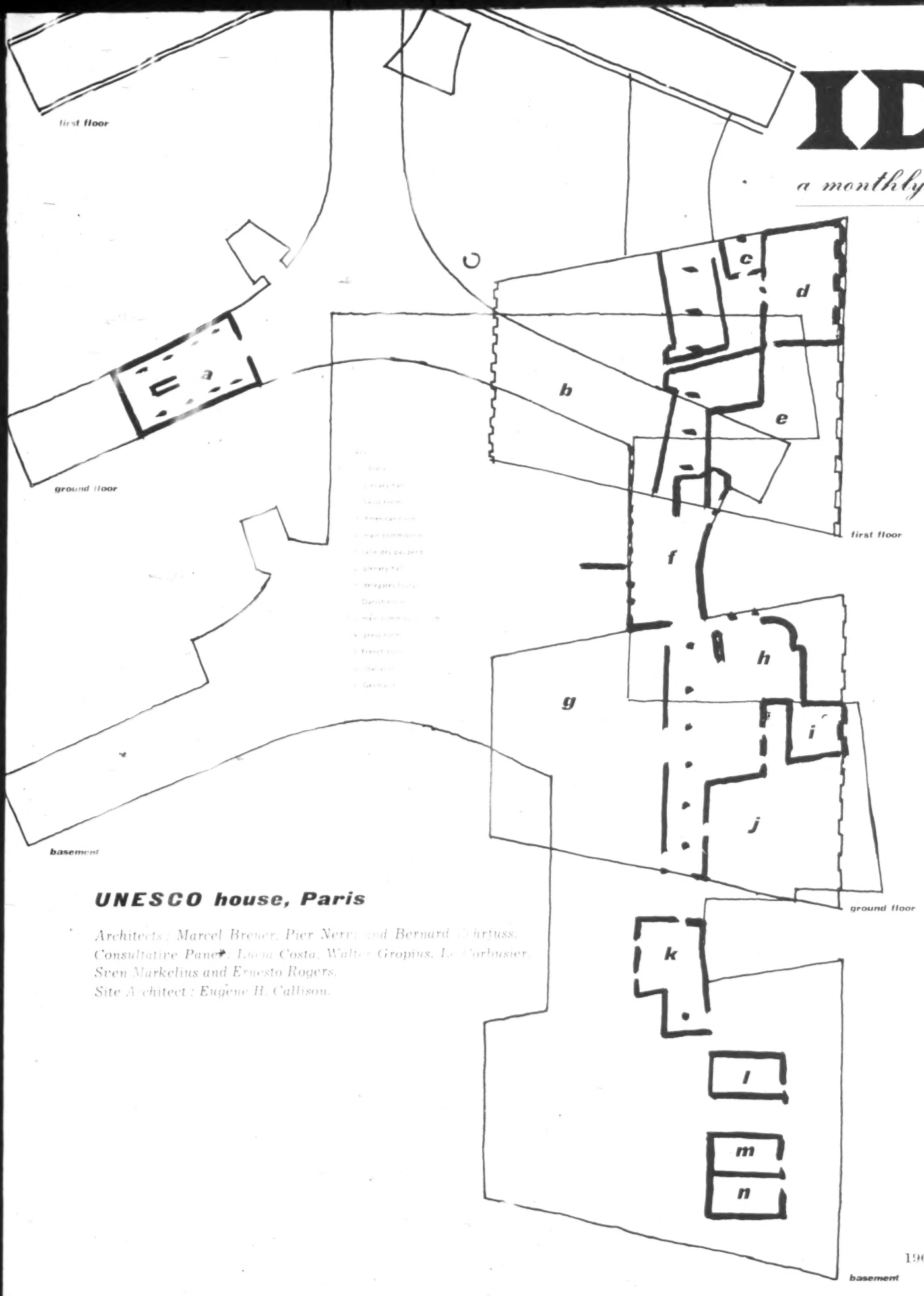


UNESCO house, Paris

Architects: Marcel Breuer, Pier Nervi and Bernard Zehrfuss.
Consultative Panel: Lucio Costa, Walter Gropius, Le Corbusier, Sven Markelius and Ernesto Rogers.
Site Architect: Eugene H. Callison.

of interior design

1

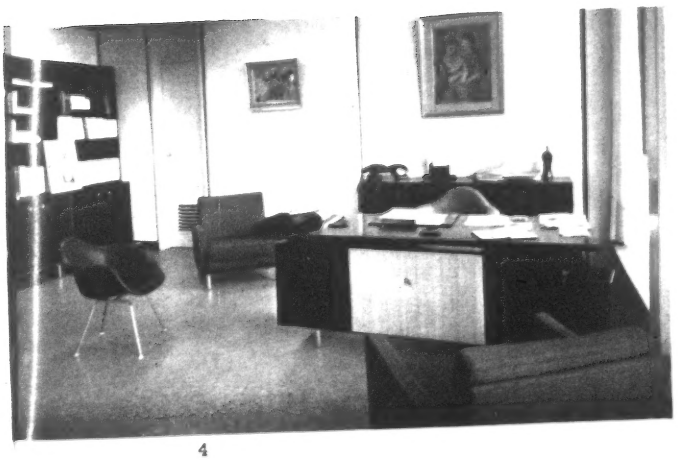
1. a view through the main entrance area of the Unesco building—the general entrance from the Place de Fontenoy lies behind the lift-block on the left. Nervi's entrance-canopy from the main forecourt can be seen through the glass, right. The pilotis, like all other exposed concrete surfaces, are sandy in tone, the floor of riven Norwegian granite.

2

2 and 3. the library, which fills in one wing of the ground floor between the pilotis (it lies directly behind the viewer in 1) is a gift from Sweden, designed by Hans Borgstrom and Bengt Lindroos. On the floor of cork tiles stands furniture of red beech and fir, clear plastic lacquered to show the natural colour of the woods. The desks have at their ends a neat device for racking, and reading, works of reference, with elbow-pads on the side-pieces.

3

4. an executive office on one of the higher floors—Eames and Knoll furniture is used extensively throughout the building. Although the fenestration can only just be seen in this view, the effect of floor-to-ceiling windows of anti-glare tinted glass can be appreciated.



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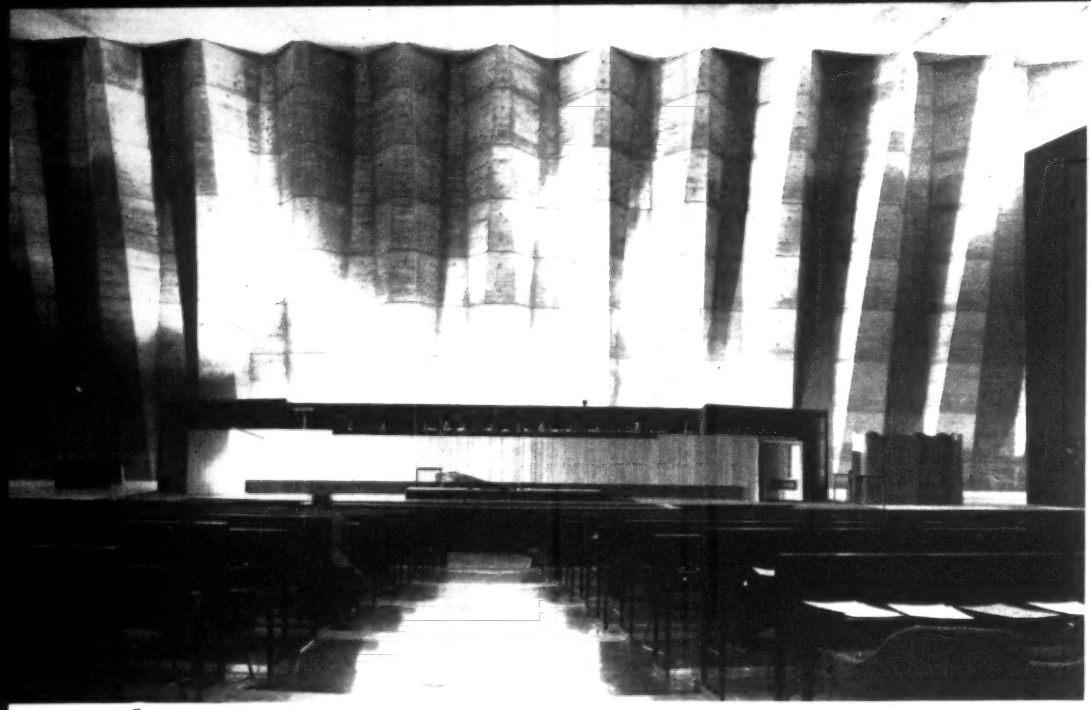


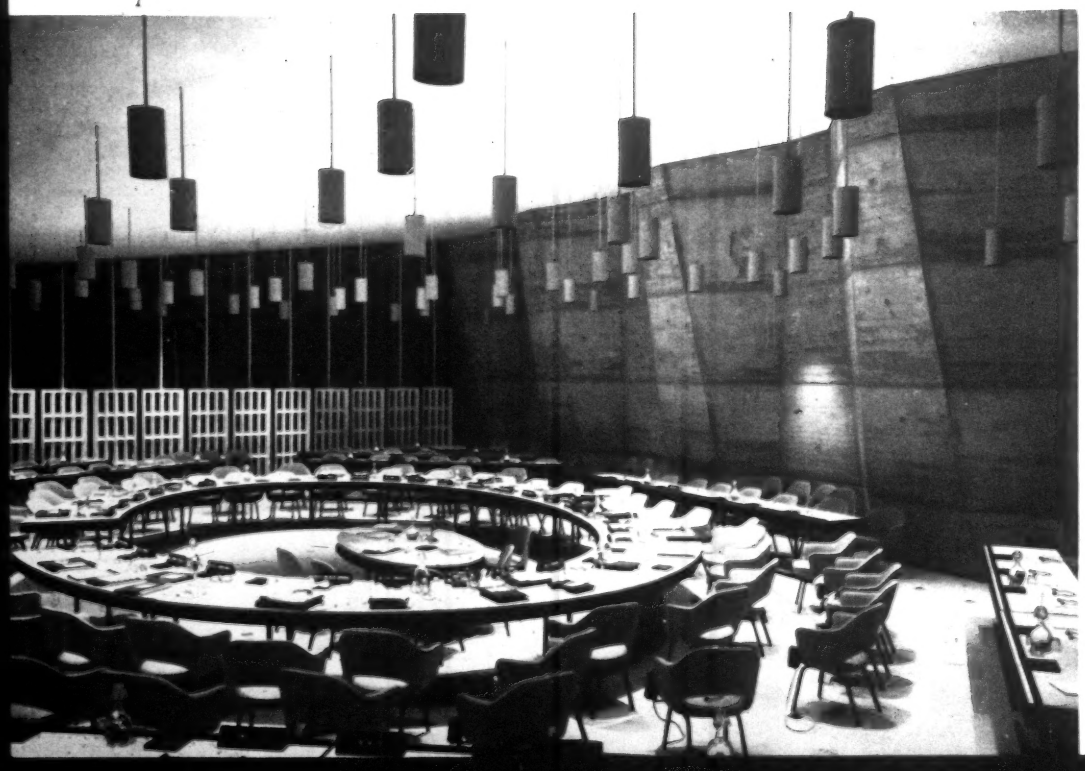
5

5. the inner face of the folded slab end-wall of the conference block gives the Hall of Plenary Assemblies of Unesco the most dramatic interior of any comparable work done in this century. The structure of the roof is also left exposed, but the sides of the room are masked by black-painted timber structures containing translation-booths, etc. (just visible at right). The exposed woodwork of the dais, however, is in natural finishes.
6. in complete contrast, the ground floor Committee Room designed by Hans Wegner (and given by Denmark), has only one exposed concrete wall, invisible in this view, the others

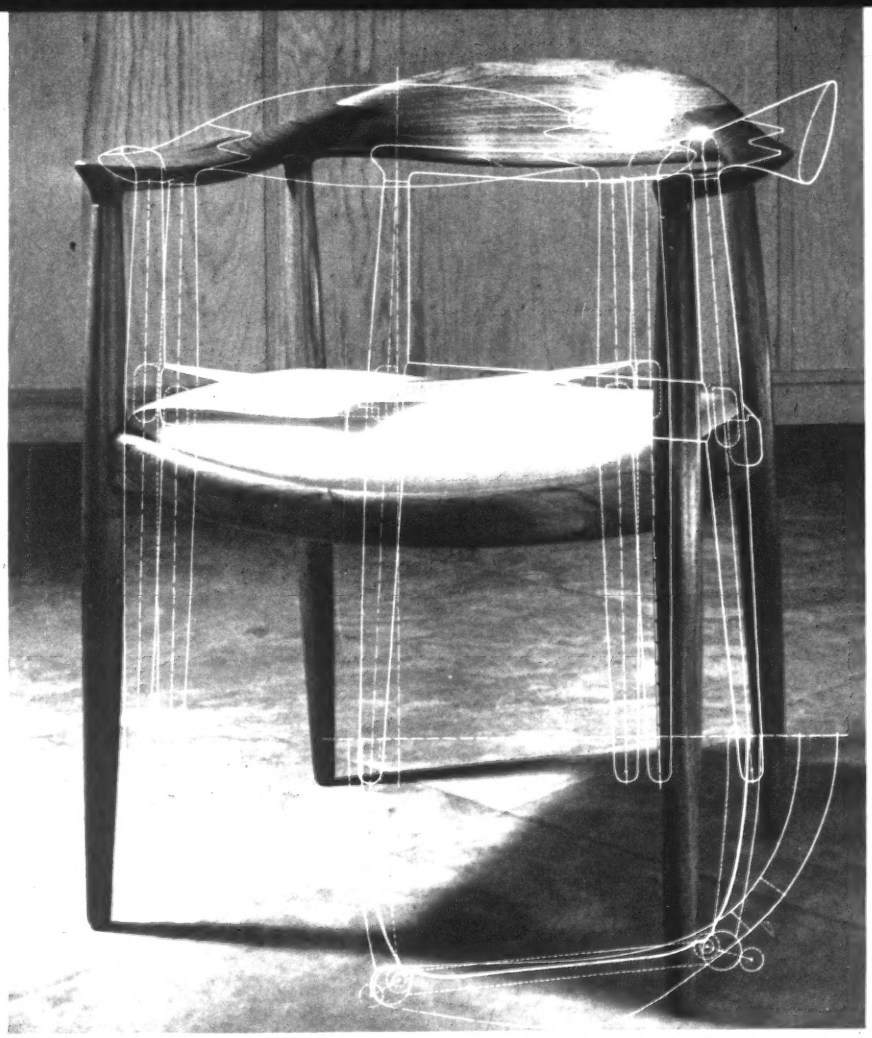
6

UNESCO house, Paris

7



being panelled in ash, with furniture of ash and teak, with natural leather upholstery—a blond colour-scheme that does much to offset the subterranean effect of many of the other windowless rooms in this block.
7. the folded slab of the outer walls appears again in the Executive Boardroom, but the smaller scale, the smooth suspended ceiling and the forest of lamps hung from it, give an entirely different effect to that of the larger rooms. Designed by Philip Johnson (and given by the USA) this room has bronze velvet side walls, protected by plastic grilles; floor, ceiling and table-tops are parchment, the Saarinen chairs covered in tan cloth—on some of the chairs the control panel for the translation service can be seen clipped to the frame.



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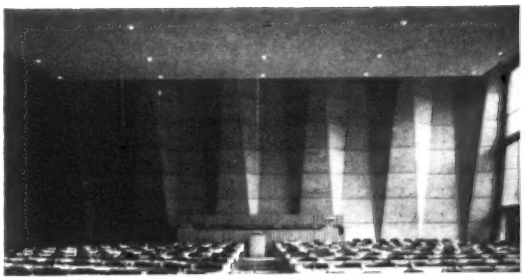
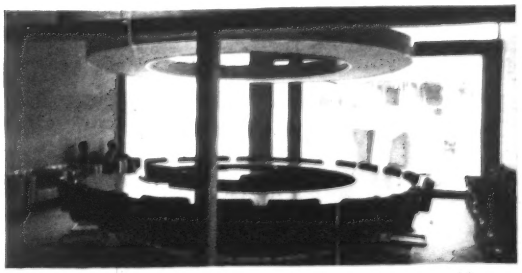


8

8, the Main Commission Room, second largest of the ground-floor rooms in the conference block, creates an entirely different effect to the main assembly by virtue of its fenestration, covering most of one side and ensuring that the folds of the end wall are seen, for much of the day, in raking light.

9 and 10, the furniture used in the Unesco building covers almost the entire range of techniques and aesthetics accepted as modern, ranging from Hans Wegner's elegantly detailed chairs (exquisitely made by Johannes Hansen) in the Danish-given Committee Room, to Robert Haussmann's brisk, shiny chromium and leather chairs, 10, for the upstairs, Swiss-given, Committee Room, seen in 11, with its circular walnut table, and circular light-fitting whose height can be adjusted at need.

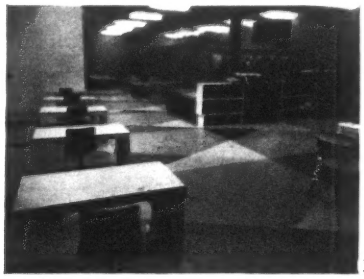
10



11

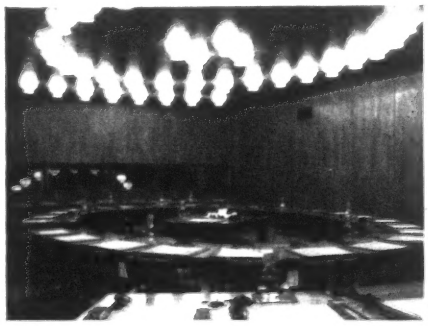
12

12, another of Haussmann's chairs, in chromed steel strip framing four removable leather covered cushions—a classic modern-movement solution for relaxing or waiting chairs. These are in the foyer of the Swiss committee-room, and one of the bush-hammered concrete walls is seen behind.



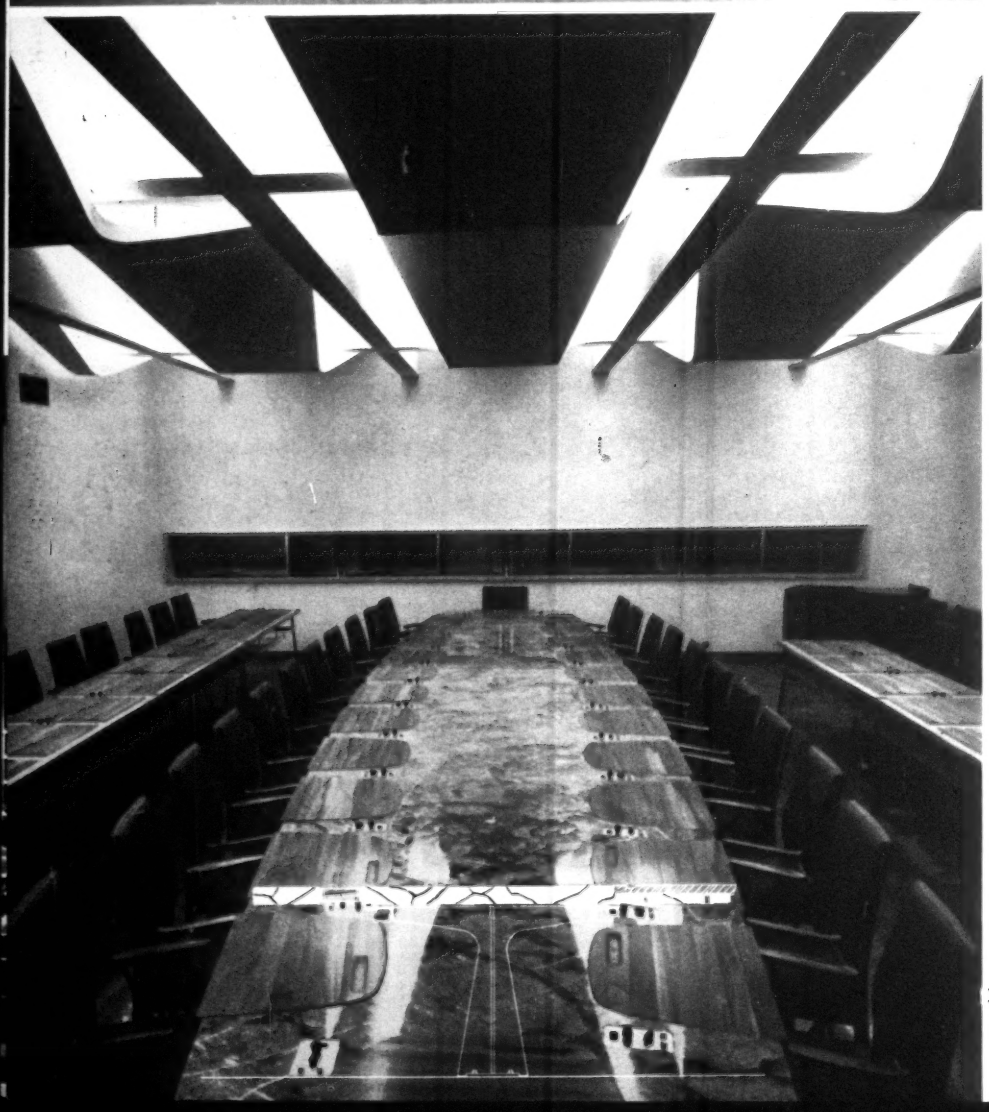
13

13 and 14, there is another sharp contrast of approach between the Press Room, given by the Netherlands and designed by Gerrit Rietveld, with its calculatedly uncluttered air (though it is far from Spartan, as witness the bold pattern of giant triangles of blue, yellow, red and green on the floor) and the most luxurious of the Committee-Rooms, that given by Italy and designed by the BBPR partnership, 14. This has walls of olive wood, and ceiling too, with curved coves merging them together, a floor of Vicenza marble, and a table that repeats the olive wood theme. The array of lampshades (of Murano glass) is intended to give direct light on each place at the table, as well as a general diffused light.



14

15, 16 and 17 opposite. The most striking of the basement committee rooms is that given by Germany, designed by Johannes Krahn. The floor is of Wallenfels marble laid in strips, the walls of light vermiculite plaster, but the whole scheme is dominated by two main features: the table, with its Bongard marble top carried on a stainless steel base—the section shows the walnut writing surfaces, right, and the space for translation controls left—flanked by purpose-designed chairs in walnut and blue leather; and the ceiling, seen also opposite, whose undulating stucco elements carry both lighting and acoustic surfaces on their upper sides.



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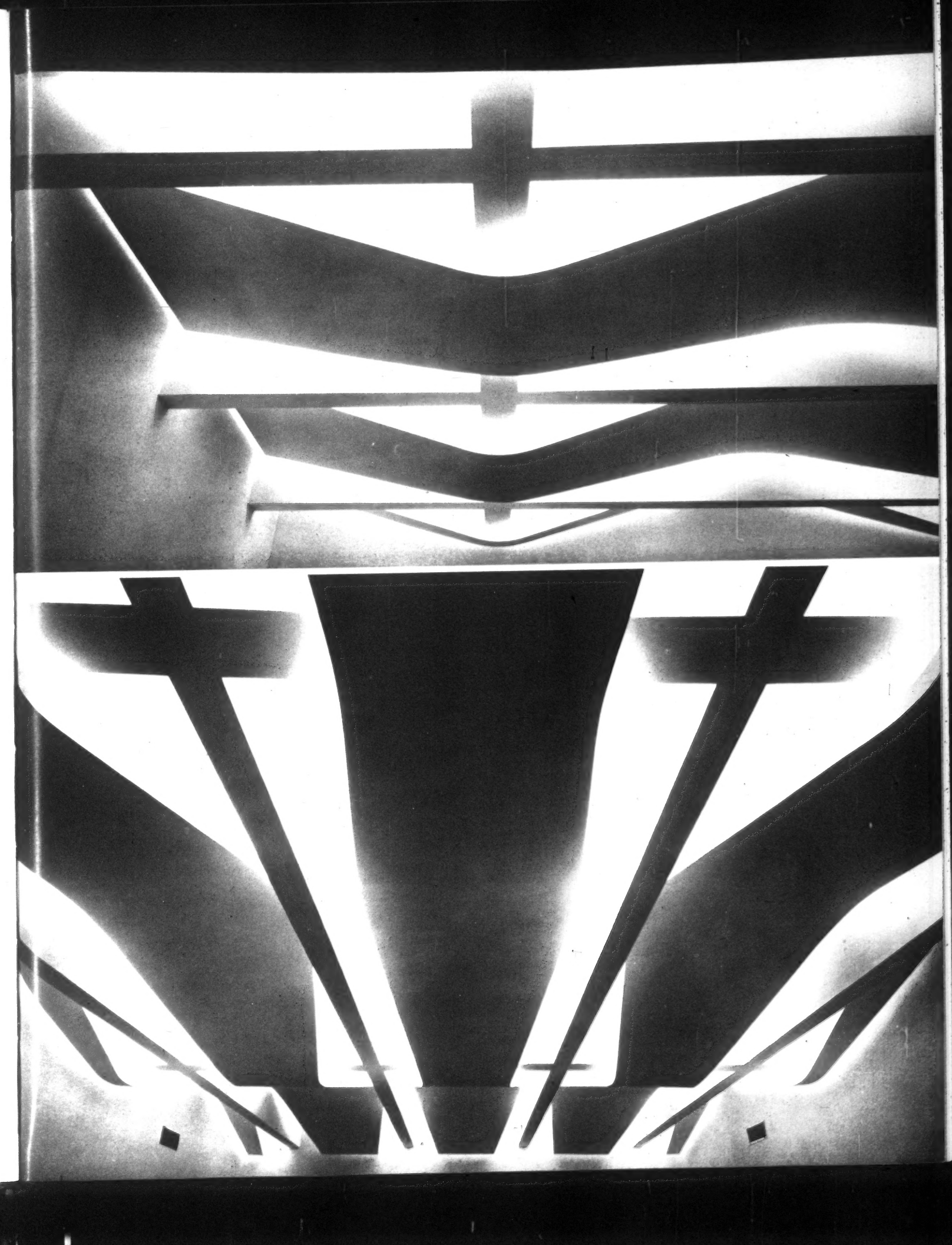
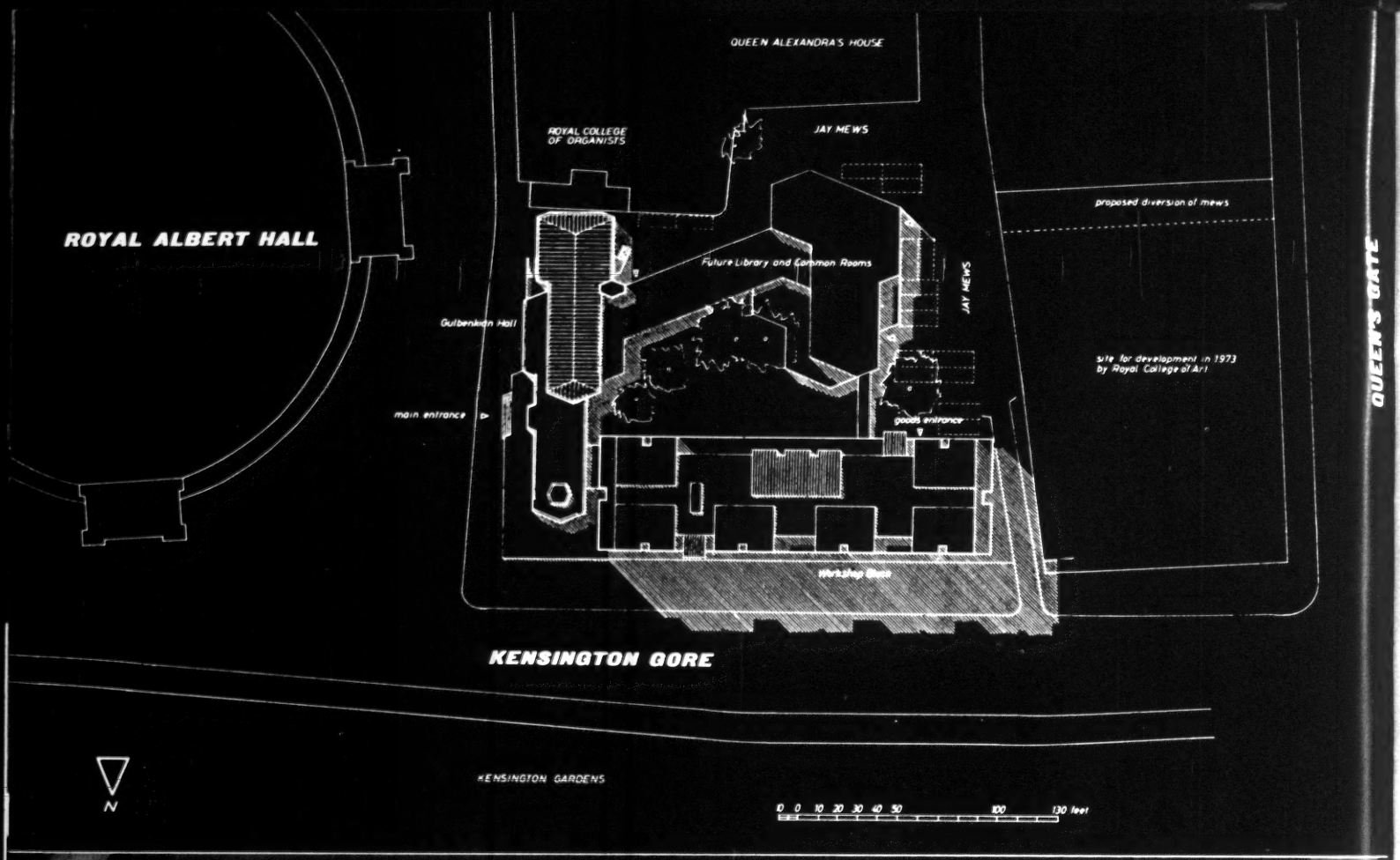
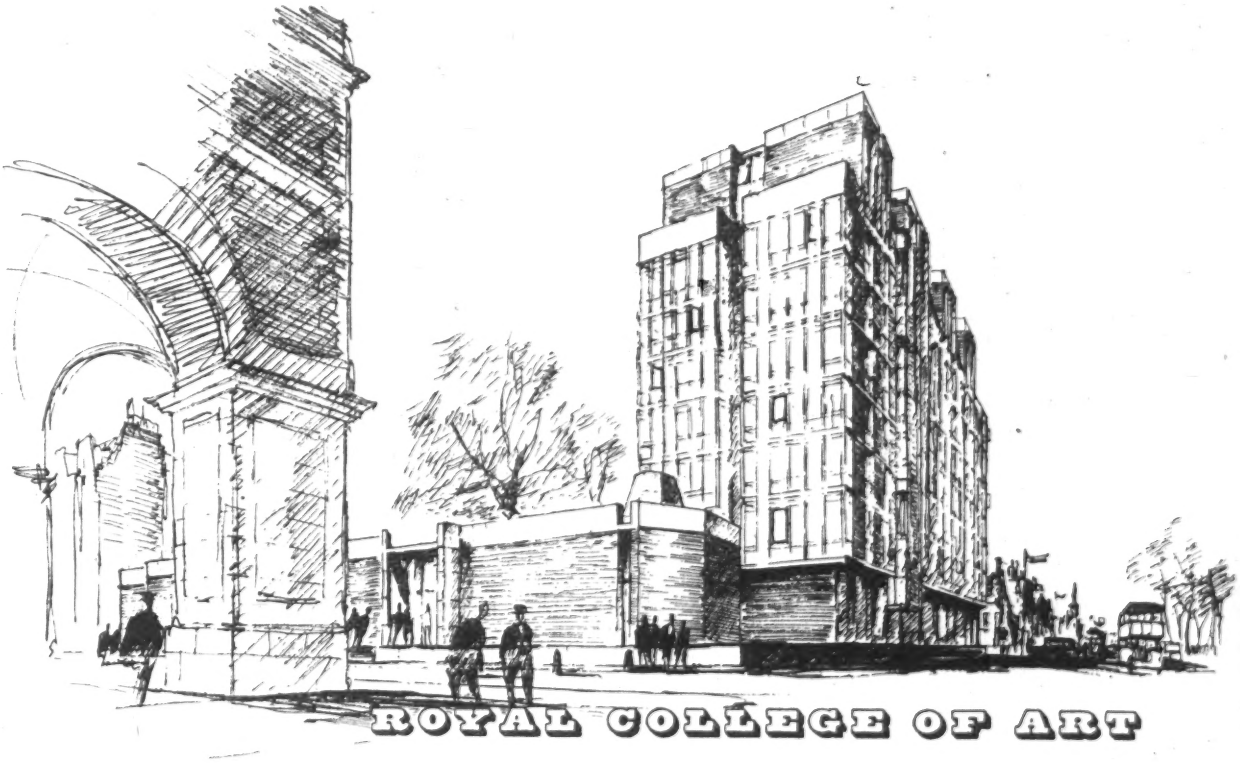
17




QUEEN ALEXANDRA'S HOUSE
ROYAL COLLEGE OF ORGANISTS
JAY MEWS
ROYAL ALBERT HALL
proposed diversion of mews
Future Library and Common Rooms
JAY MEWS
Gulbenkian Hall
site for development in 1973 by Royal College of Art
main entrance
goods entrance
Workshop Block
KENSINGTON GORE
KENSINGTON GARDENS
N
10 0 10 20 30 40 50 100 130 feet
QUEEN'S GATE

100
Royal Albert Hall
Royal College of Art

the plan, above, and photograph of the model, below, show the layout of the new college buildings and their relationship to the Royal Albert Hall and the Albert Memorial. The superimposed section gives the comparative heights of the buildings. Left, Albert Hall Mansions; centre, Royal Albert Hall; right, Royal College of Art.

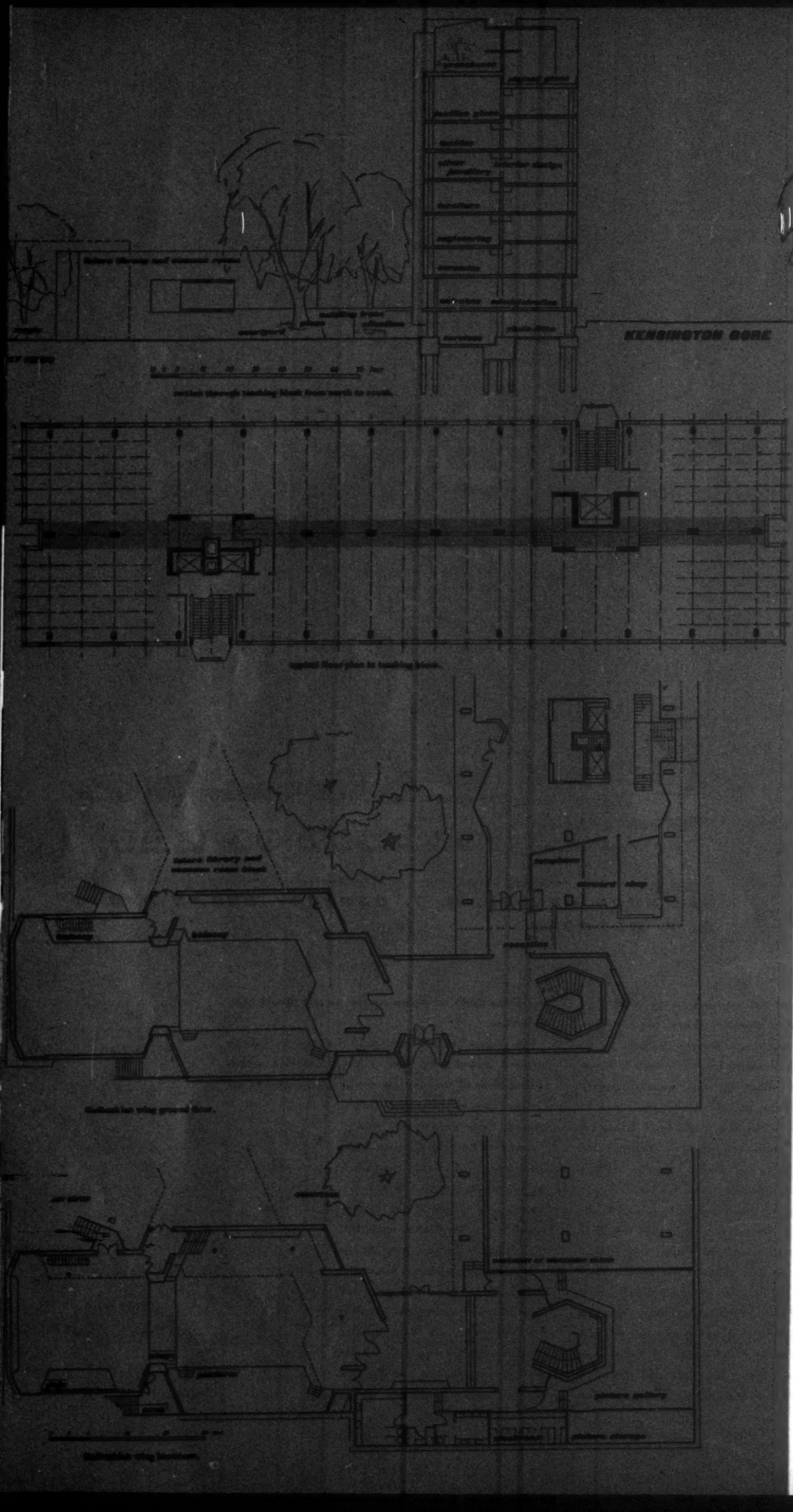


ROYAL COLLEGE OF ART

ARCHITECTS | **SIR HUGH CASSON, H. T. CADBURY-BROWN AND R. Y. GOODDEN**

The Royal College of Art was first set up in 1837 in two or three rooms in Somerset House, one of which contained antiques and was to become the germ of the Victoria and Albert Museum. Later it moved to Marlborough House and from there to some temporary shacks off Queen's Gate. In 1863 it was established in what is now known as the Main Building in Exhibition Road, which today houses the Schools of Painting and Graphic Design and the administrative offices. Plans put in hand for a new building were frustrated by the first World War. It was again decided to rebuild in the late 1920's and plans were drawn up for a new College on the three-cornered island site facing the Victoria and Albert Museum, but this plan was postponed through the depression of 1931. A few years later, as a result of the report of the Hambleden Committee, a further decision to rebuild was taken and a very fine site was allocated to the Ministry of Education for the purpose in Kensington Gore, facing the Park and stretching between the Albert Hall and Queen's Gate, but before any plans could be drawn up the second World War broke out.

The proposal in 1955 to expand the Imperial College involved demolishing the Western Galleries, which housed three of the most important departments of the College. This, in turn, called for rehousing them on the new site in Kensington Gore. If this was done, it was clear that all the departments of industrial design and the administrative offices of the College should be concentrated upon this site, while leaving space to be occupied later by general accommodation, including a Hall and Common Room. Eventually a grant of £424,000 was made for a building of some 102,000 sq. ft. From the start it was apparent that the sum allowed would mean an austere

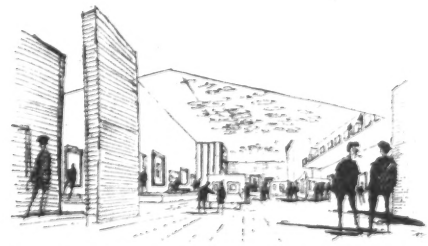


ROYAL COLLEGE OF ART

building in the simplest materials. This need for economy posed great problems, but plans are now complete. Building is due to start early in 1960 and should be completed by the end of 1961.

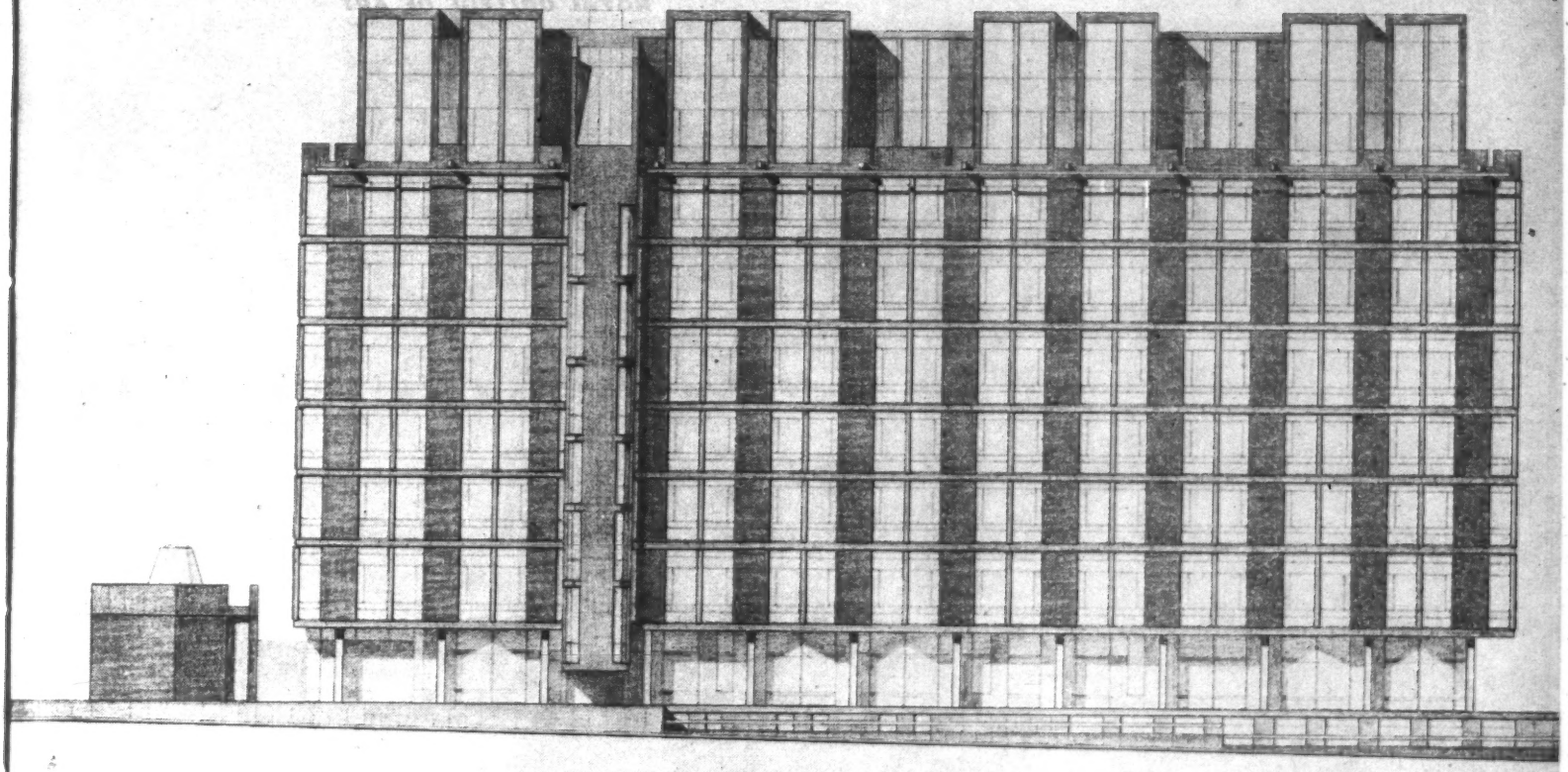
It was clear that the government would not agree to give the College the hall and exhibition space which it badly needed for a very long time indeed. An appeal was, therefore, made to the Gulbenkian Foundation, and the Trustees very generously gave £75,000. The planning of the hall was immediately started and it is hoped that it will be built at the same time as the main block.

The main block runs along the northern boundary of the site, where height is not restricted. The Gulbenkian Hall will be on the east of the site; the common room block will occupy the south-west corner and will be linked by a bridge to the teaching block and by a library

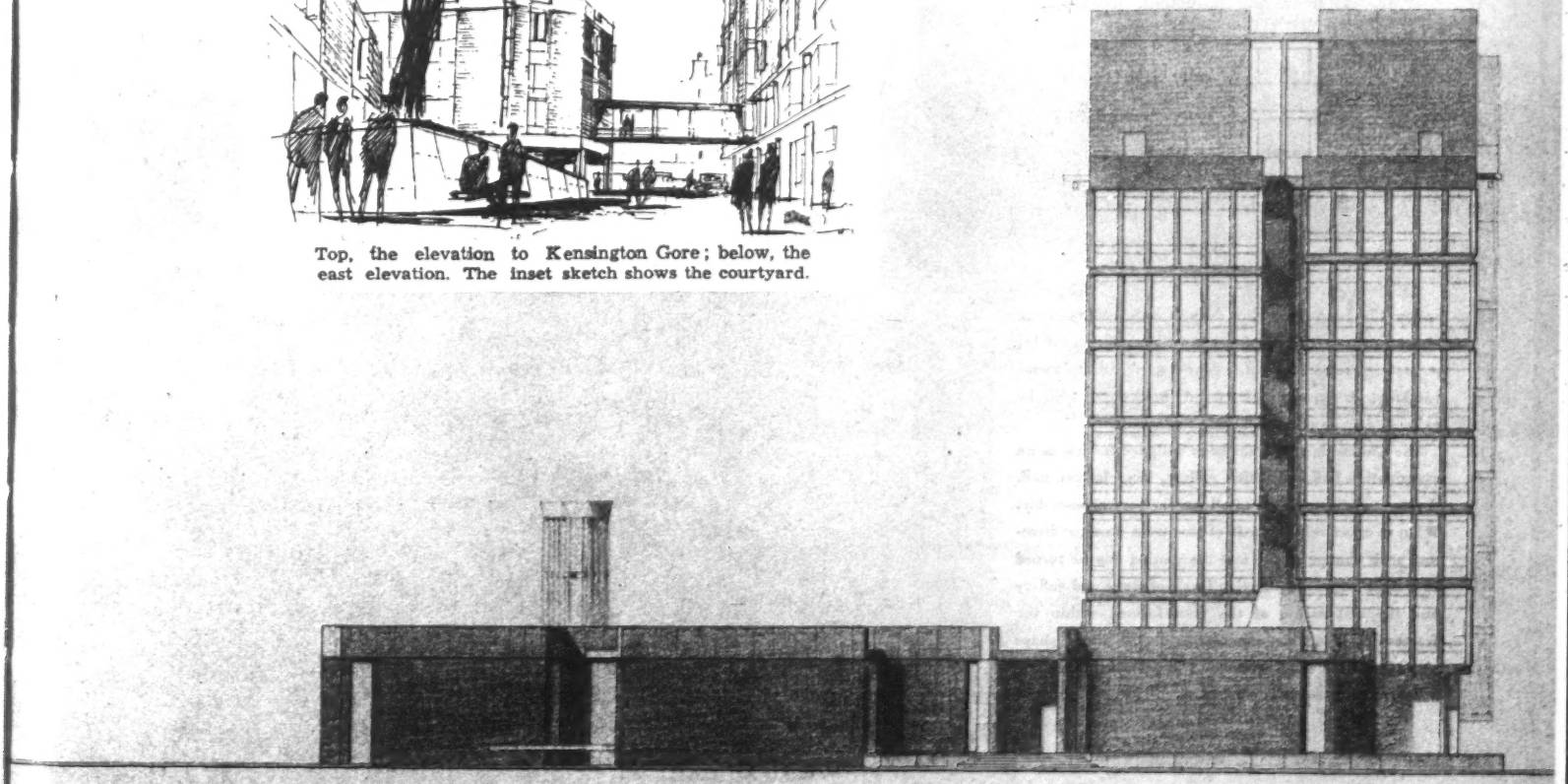


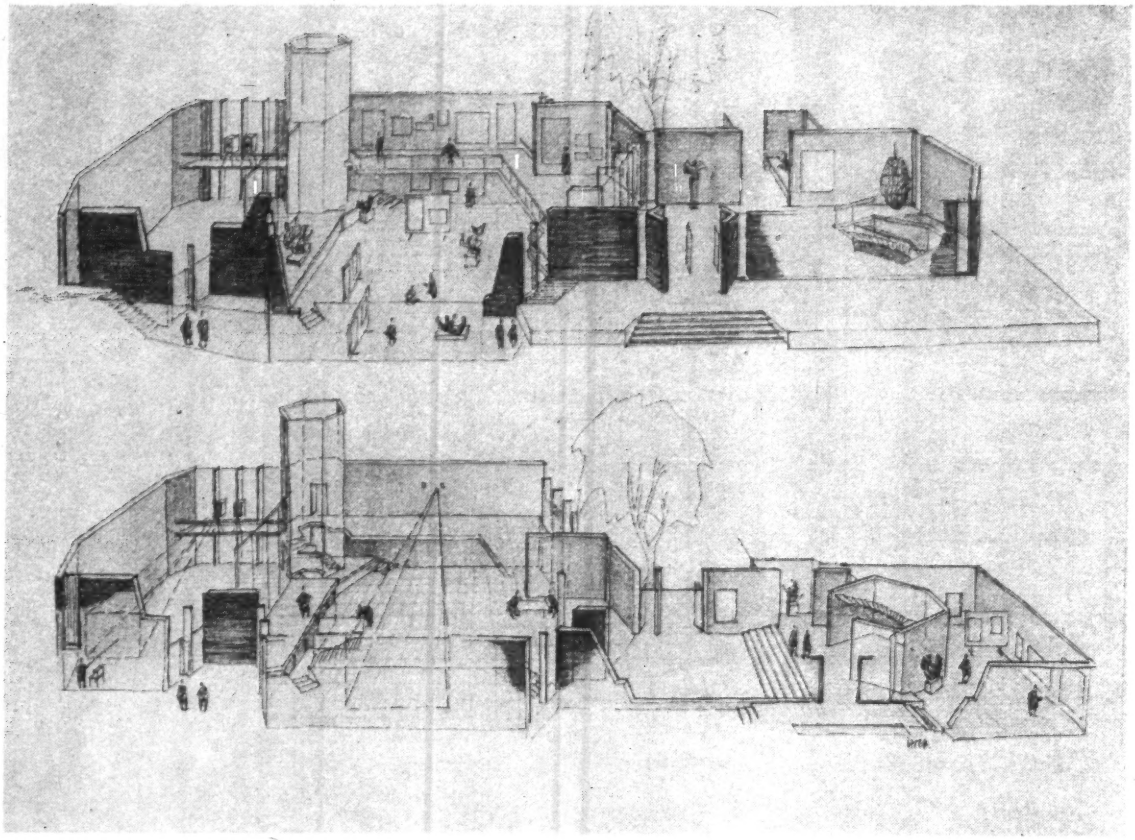
The Gulbenkian Hall, looking towards the stage.

and lecture room to the hall. In the teaching block, studios and workshops lead out of each other on every floor and the whole of each floor is designed to take a load of 150 lbs. a square foot. Floor levels are arranged so that each department has some ceilings 12 ft. high and some 10 ft. high. There are two towers of vertical circulation by lift and staircase, placed one on each of the long external walls and acting as wind braces. The structure consists of a reinforced concrete frame with

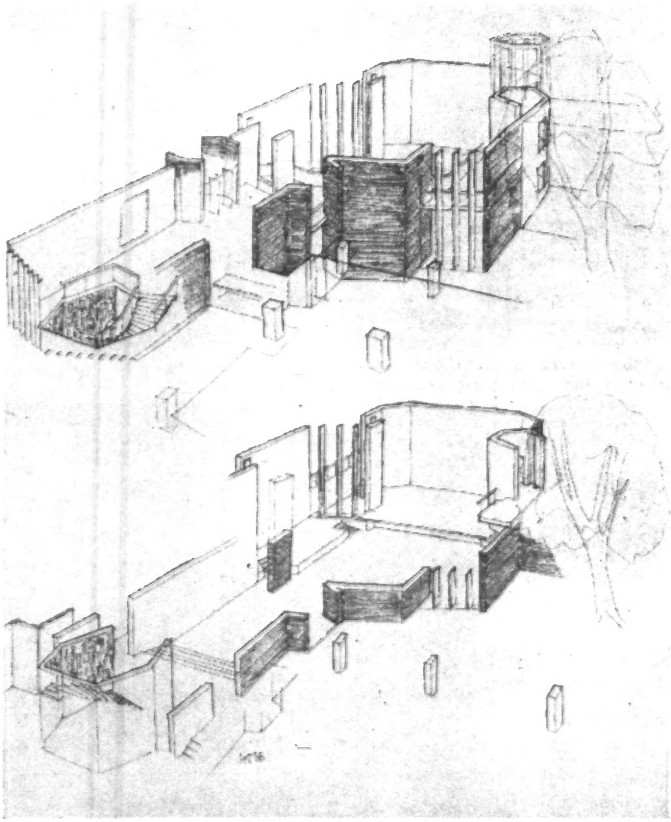


Top, the elevation to Kensington Gore; below, the east elevation. The inset sketch shows the courtyard.





Above, the ground floor of the Gulbenkian wing, used as an exhibition hall, and the basement, from the north. Right, exploded sections of the ground floor and basement, looking towards the stage.



hollow tile floors 15 inches deep to keep ceilings clear of beams. Externally the finishes are dark facing bricks, precast concrete panels with exposed aggregate and metal windows. Internally fair faced brickwork will be painted, doors and frames will be of wood.

The Gulbenkian Hall has been designed for use as an examination hall, exhibition gallery, large lecture hall, theatre and cinema, dance hall and for general assembly. What is effectively the axis of the room changes direction with change of use and the seating can be turned in a right angle. The varying levels of stage and gallery and the elaboration of the plan formed within the framework of a strict modular grid of diamond shape should provide an interior that is always interesting, whatever purpose it is serving.

current architecture

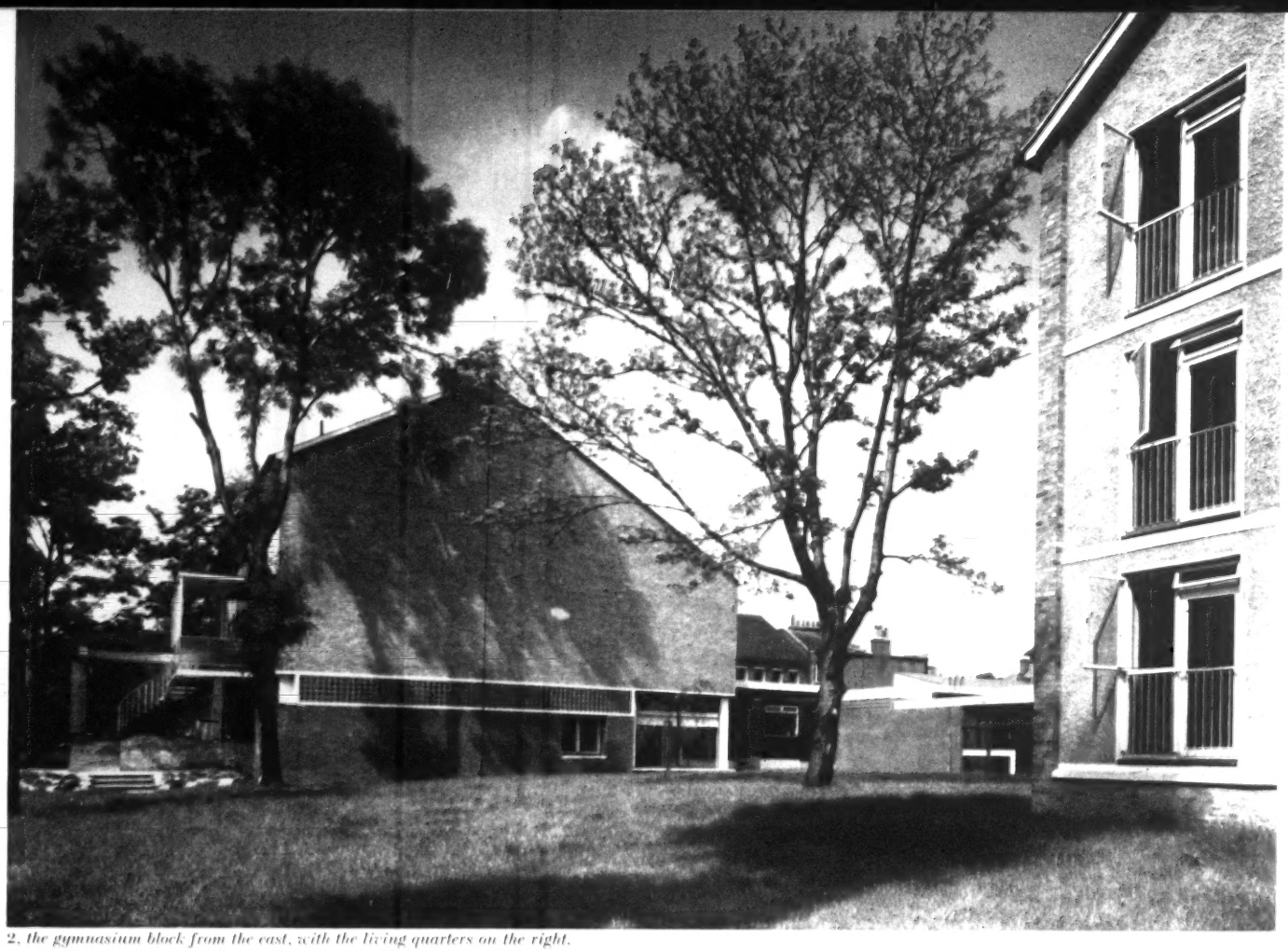
recent buildings of interest briefly illustrated

View of the gymnasium and changing block from the river garden.

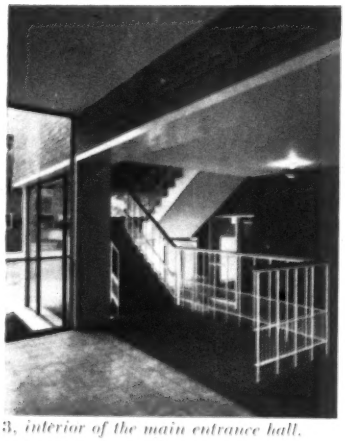
POLICE HOUSING AT CANONBURY

ARCHITECT: S. J. HANCHET, CHIEF ARCHITECT, NEW SCOTLAND YARD

The site was originally part of Canonbury Manor and adjoins two other groups of police housing for married men. Many of the mature trees have been retained and the design also takes advantage of the river gardens on the south. Accommodation is provided for 100 single men, in one three-storey bedroom block of 54 rooms, and one two-storey block of 49 rooms. To the left of the main



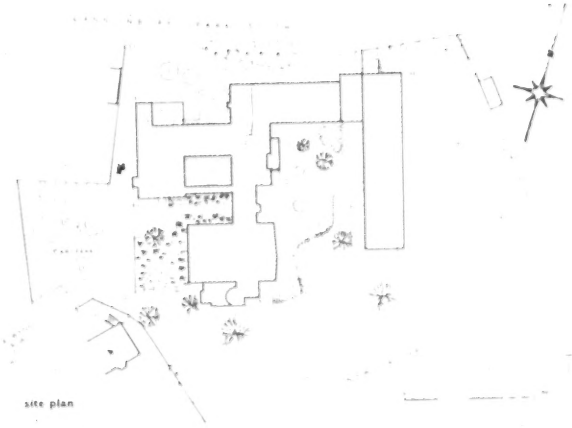
2. *the gymnasium block from the east, with the living quarters on the right.*



3. *interior of the main entrance hall.*

Police Housing at Canonbury

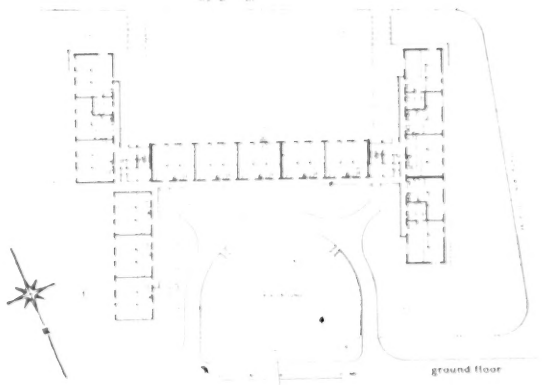
entrance there is a canteen, billiards and dining rooms, lounge and library. In a two-storey block to the right of the entrance are the gymnasium and cloakrooms, which can be used as a separate building. The three-storey blocks are of reinforced concrete frame construction with brick cladding; the lower blocks are of load-bearing brickwork and the gymnasium has a pre-cast portal frame. Open planning and low buildings were used to keep the costs as low as possible.



site plan

4. *south entrance of the gymnasium block.*

5, view of the flats looking west across the playground.

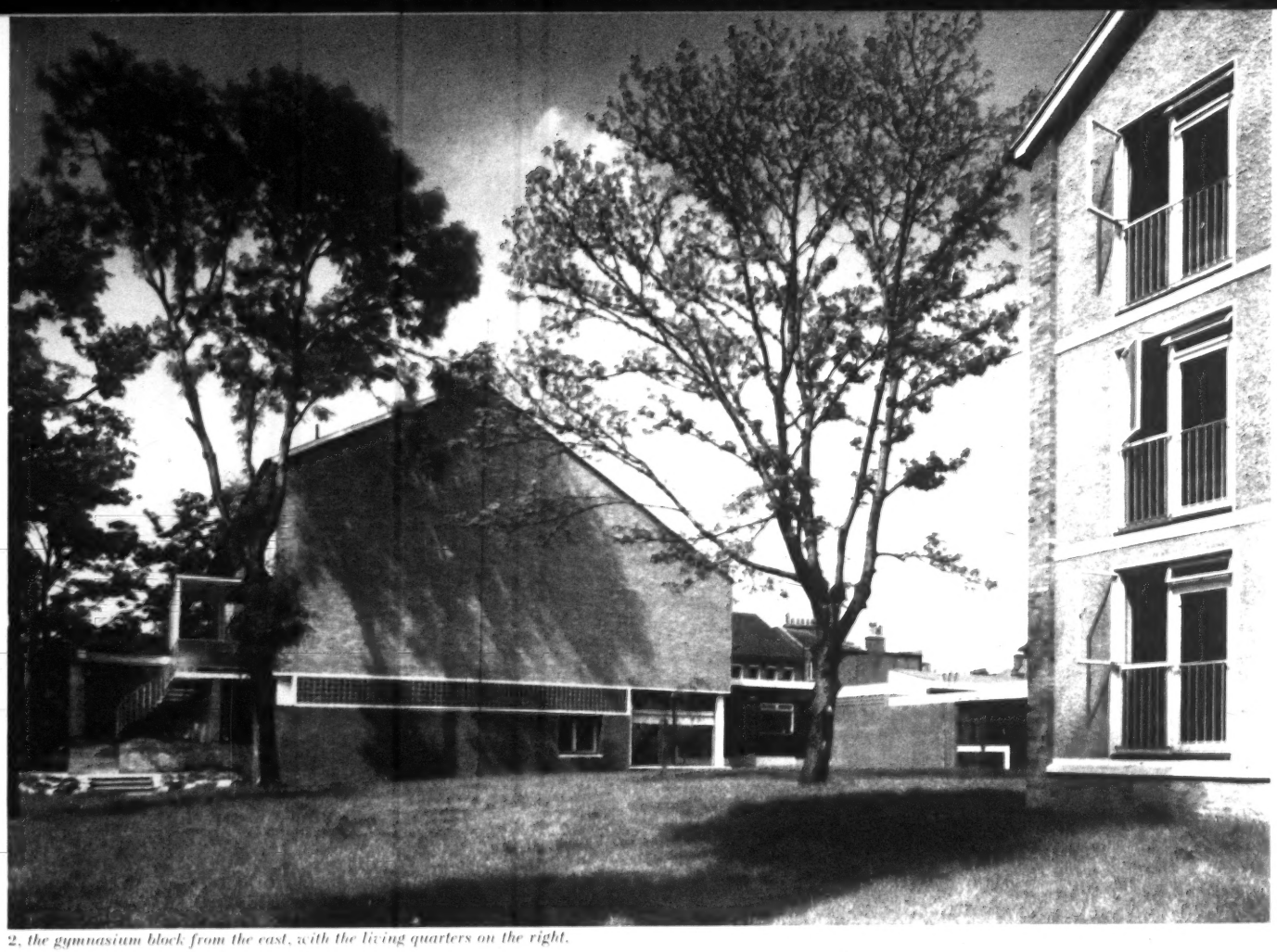


FLATS AT GATESHEAD

ARCHITECT: LESLIE BERRY (County Borough Architect, in association with G. F. Winters, Borough Surveyor).

This ten-storey block of flats, built by the Borough Council at Ann Street in Gateshead, has a frame of no-fines concrete construction, with brick-faced end walls and timber curtain walling. The panels below the windows are of painted plywood. The flat roof is concrete with an asphalt finish. Internal floors are of concrete, surfaced with thermoplastic tiles. Walls internally are plastered and painted. Space heating and hot water are provided by gas convectors and multi-point heaters connected to a vertical duct which both supplies air for combustion and carries away waste products, eliminating the need for ventilators on external walls. Gas-heated clothes drying cabinets are also provided in each flat.

6, a junction of the main block with a wing showing the timber curtain walling with brick-faced end wall.



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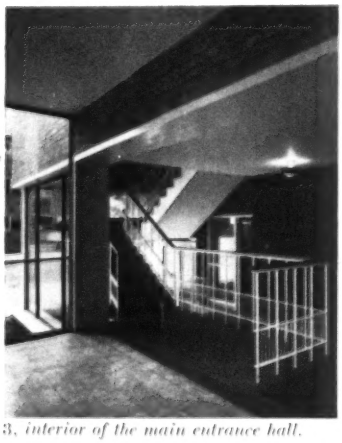

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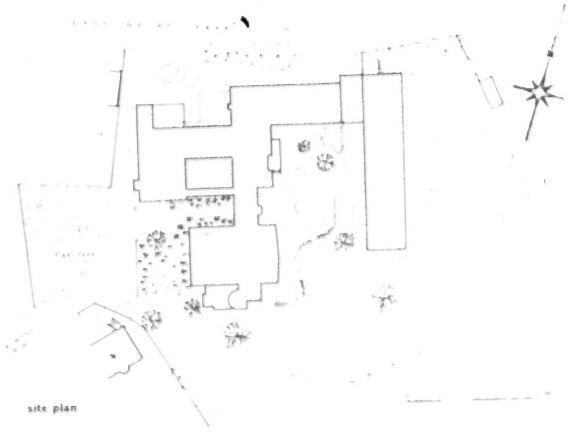
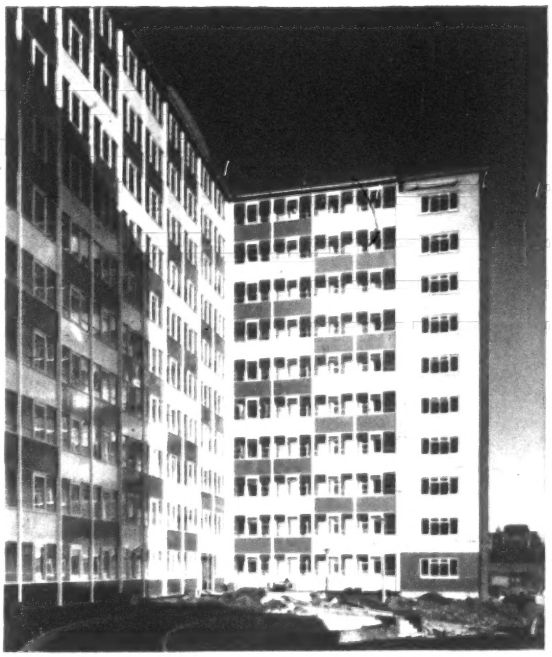
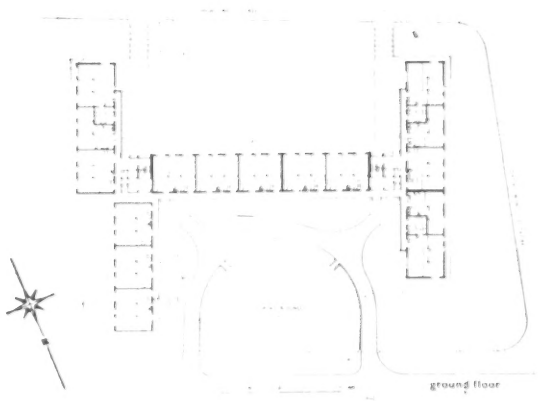


site plan

4, *south entrance of the gymnasium block.*



5. View of the flats looking west across the playground.



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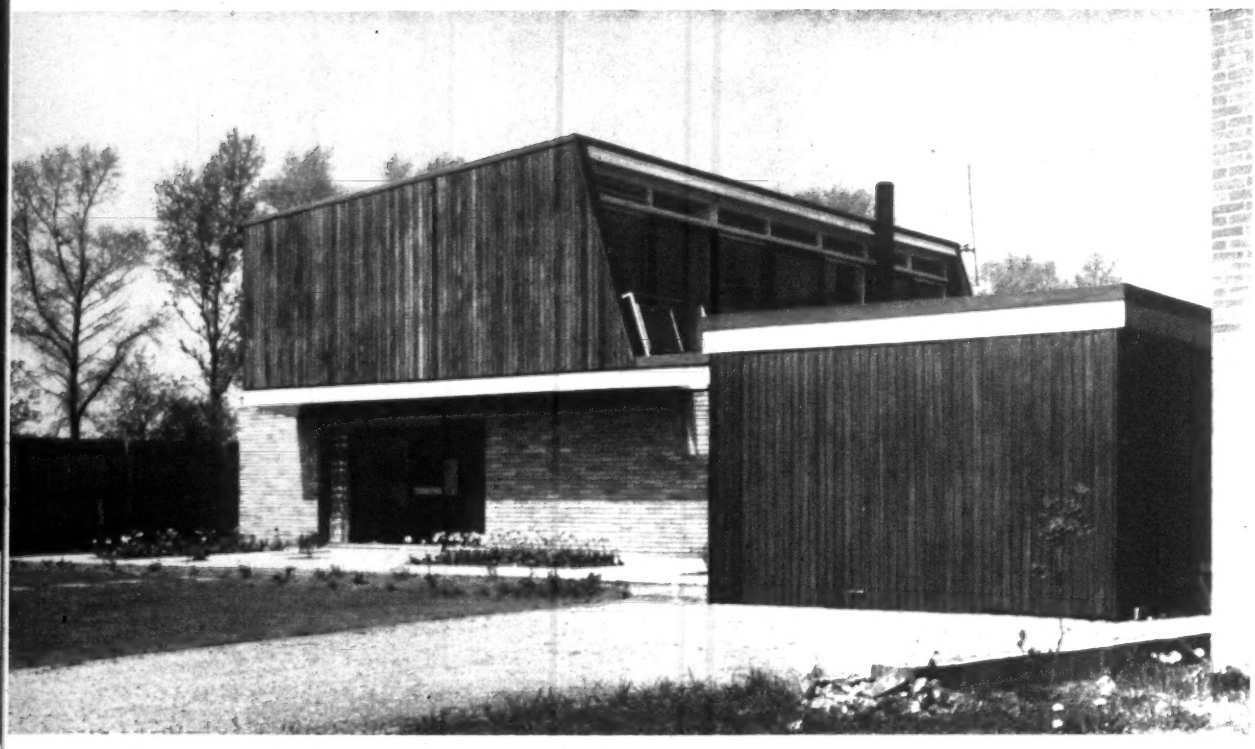
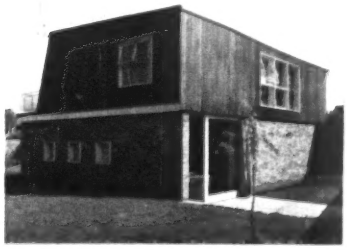


7, the garage and front door showing the timber cladding used for the first floor construction and yellow Dutch bricks for the ground floor.

HOUSE AT RICHMOND

ARCHITECT: M. HOWARD-RADLEY

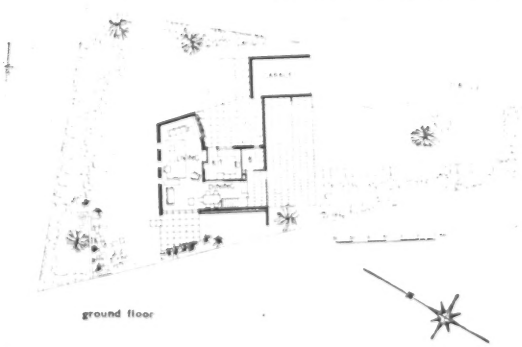


8, the house from the south-west, with the sliding window to the living room on the right.

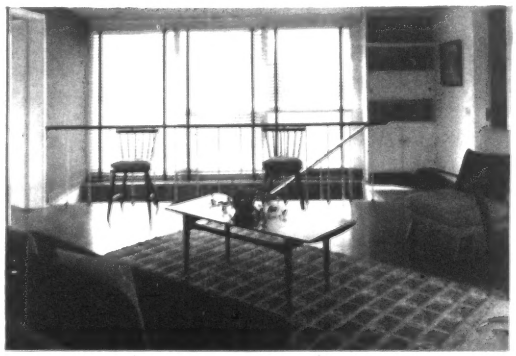
9, large open landing for use as a study or additional living room.

10, front door of armourplate glass with a specially designed lock and push plate.

This house at Richmond, Surrey, is built on a small triangular plot with a view of Petersham Woods to the east. The design uses the change of level in the site to provide a sense of greater space, with the low-ceilinged entrance hall opening out into the living-dining area. The kitchen is enclosed by a completely sliding wall and the freestanding fireplace forms a focal point to the main living space. The large open landing on the first floor can be used as a study or additional living room. The ground-floor walls are of cavity construction; the first floor has a braced platform frame clad with 1¼-in. diagonal boarding and vertical mahogany boards. The roof finish is asphalt and all drainage is internal. Double glazing is used, and electric floor heating.



ground floor



9

10

The name miscellany implies, of course, an architectural miscellany one that will include subjects which, though marginal to architecture, are nevertheless vital to it.

miscellany

EXHIBITIONS

PAINTING AND SCULPTURE

In the margin of one of his wobbly drawings of a standing figure which looks like a ramshackle tower on legs, Eduardo Paolozzi has written, 'wonky and steadfast,' and it beautifully describes the standing figures in his exhibition of bronzes at the Hanover Gallery. Paolozzi is making his contribution to the stand-in for the human effigy after more than ten years of inspired messing about, and it turns out to have been time well spent. The messing about has assumed monumental proportions, and I am inclined to think that he has very nearly solved the most intractable problem of twentieth-century sculpture. Few contemporary sculptors feel that they are involved in the creative process unless they depart more or less radically from human appearance, but in the outcome they usually give the figure an inhumanly reduced range of attributes. The figure becomes a symbol of fear or anxiety or sexual vitality; it often discloses a nostalgia for lower forms of life or for some imaginary alternative from outer space, and even more frequently, it stands for man's inhumanity to man on account of the fact that it has had nasty, sadistic things done to it by the sculptor. Paolozzi doesn't turn up his nose at these fractional solutions; he includes them all and adds some more. His solution is to make a kind of primitive architectural hold-all. He has found a way of erecting monuments to the diversity of his interests, which includes horror films, science fiction, the life of the seashore, car-wrecking yards, factory tips, Zen Buddhism, collage, drip painting and the art of the Far East.

1

The two-legged verticality of his crude and tottering constructions, 1, has to stand for the human frame, and a couple of holes or knobs in the potato-like top storey of these constructions has to stand for the human gaze; but these absurd pieces of home-made architecture are encrusted with an agglomeration of automatic textures (obtained by taking impressions of an immense variety of objects)

2

which, at the same time, contrives to be a highly allusive ornamentation. The effect of broken-down grandeur obtained by this mixture of calculated jerry-building and inordinate surface enrichment gives his figures and giant heads, 2, an air of having achieved, like warm, muddled humanity, some sort of balance between suffering and day-dreaming.

Even when the image is a shattered head, and the cruel streak in the artist is well to the fore, one is as much aware of the clumsy, kindly attempt to put the pieces together again as of the assault which preceded it. And it was perhaps the same accent on mending and patching-up in Corrado di Marca-Relli's large collage-painting entitled *Sleeping Figure*, 3, which made it so much more spontaneously alive than the strenuous efforts of most of the other exhibitors in the 'Seventeen American Artists' show at the new USIS Gallery, at 48 Grosvenor Square, to demonstrate their vitality. The Marca-Relli picture is composed of irregular pieces of painted canvas partly gummed and partly sewn on to a support, and the sense of a gentle hand at work which is inextricably involved in the pleasure it affords the eye, pervades the entire patched surface. It is as if the picture owes it repose (which the posture of the figure merely reflects) to the same sort of inner stillness that some mothers experience when darning for their children.

After Marca-Relli, Ellsworth Kelly made the most interesting contribution to what seemed to me to be an untidy and disappointing show. His smooth, sharp-edged black-and-white abstraction called 'New York' raises the suspicion that he has been putting a ruler to the art of Franz Klein, but the thing that makes his work tick is the romantic feeling for the big city which he shares with earlier American painters such as Demuth, Sheeler and Stella.

The largest exhibition of Russian paintings ever to be held in Western Europe is the smallest exhibition I have ever seen at Burlington House. It was obviously selected to serve an ideological purpose, and the impact of pre-revolutionary work appears to have been deliberately reduced partly to efface the image of Imperial Russia and partly to create the impression that spaciousness, exuberance and communal feeling are qualities only to be found in post-revolutionary Russian paintings. I can't think of any other excuse for not letting us see Repin's jolly cossacks.

The Ikons might have given a sense of the magnificence of the Russian contribution to Byzantine art if they had been crowded together on a single wall of one of the two galleries over which they were so thinly spread. As it was, the gold and the colour rose and fell like the light from a guttering candle, creating, so to speak, an optical illusion that the art of the Russian Orthodox Church was perpetually on the point of dying out, instead of being

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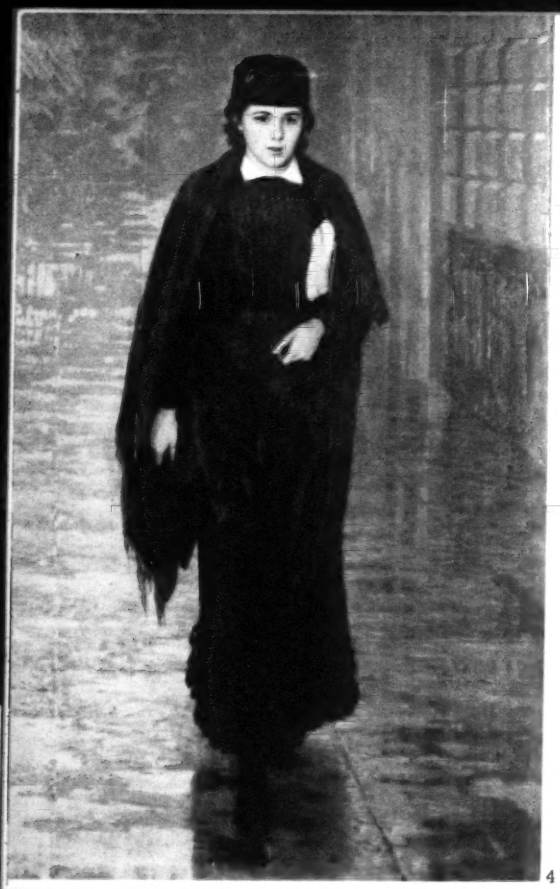

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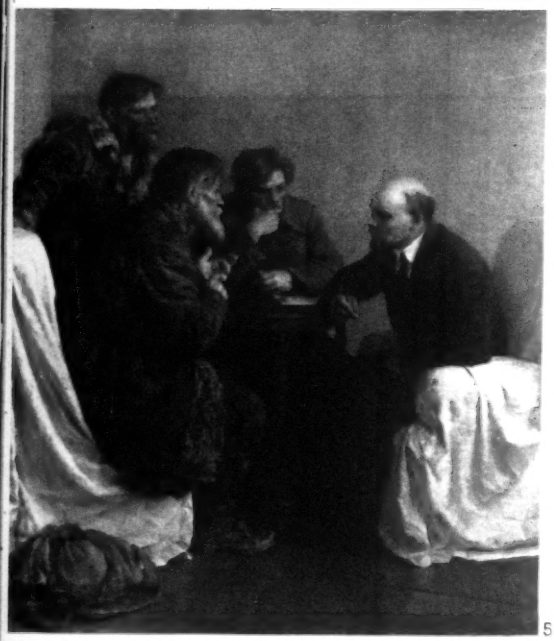

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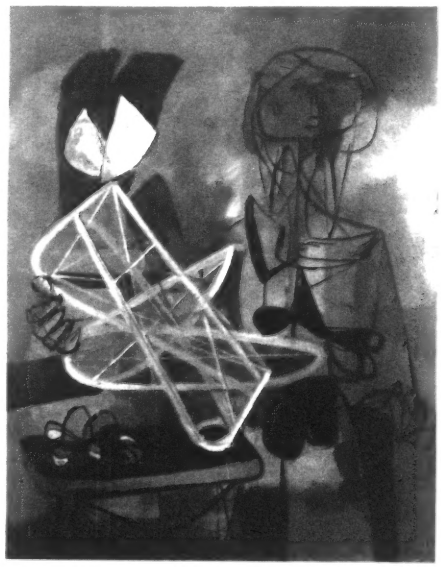
quite vigorously alive until the end of the sixteenth century. There is nothing from the seventeenth century, and the secular art of the eighteenth century is represented by only eight moderate-size pictures, presumably because almost all the work of that period reflected the life of the Court and the Gentry.

The nineteenth century provided much more material for a specious selection. It is represented by many naturalistic portraits of intellectuals and peasants, a number of topographical landscapes and a few all too few small *genre* pictures. An atmosphere of quiet and dull sobriety reigns over this group of works, and although the pictures are probably good examples of the narrow field they cover Nikolai Yaroshenko's portrait *Girl Student*, 4, described in the catalogue as 'a typical image of a representative of the democratic intelligentsia,' even has charm they do not console one for the absence of those pictures painted by a 'whole series of masters' which, according to the Deputy Director of the Tretyakov Gallery, dealt with 'the life of the village before the reforms, the social conflicts of the cities, women's problems, and all the most thorny questions.' And one has only to look at the short biographies at the back of the catalogue to realize that most of the nineteenth-century artists included in the show are represented by minor works and that they are famous in Russia for their battlepieces and history subjects, painted on a huge scale. Gruesomely enough, it is Vladimir Serov's *Delegates from the Villages visiting Lenin during the Revolution*, 5, painted in 1950, which best represented nineteenth-century 'history' pictures at the Academy.

The early twentieth century was very poorly represented for the simple reason that all 'formalist' pictures of the period were omitted and the theatrical designs of *Mir Iskusstva*, founded by Benois and Diaghilev, were represented by two indifferent gouaches by Benois.

In the late twenties, Alexander Deineka made an attempt to create a kind of formal realism with a social content, based on Eisenstein's handling of crowd composition. His *Defence of Petrograd*, 6, is probably better known in the West than any other Soviet painting, and from the Western point of view it remains the most presentable. But it is really no more than a striking poster design, and it is not difficult to understand why the Soviet find it unsatisfactory, and describe it as 'strained and stony.' In his attempts to 'reform,' Deineka has horribly overdone the healthiness and the optimism, and his huge, crass painting of a relay race, painted in 1947, is a raspberry-pink caricature of the rosy atmosphere demanded of Soviet 'realism.' There are, however, several painters who appear to have the right kind of illustrational exuberance for the task of painting the laborious joyousness of the Russian people at work and play, and they cover large canvases with a juicy pigment in a way which reminds one of some of the lesser lights of action painting; the only difference is that when the action painters perpetrate an image it is liable to be James Dean's car after the smash.

The Obelisk Gallery in Crawford Street has been holding a small but fairly representative retrospective of Jankel Adler's oils, water-colours, drawings and monotypes, and two or three other galleries



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have acknowledged the occasion by bringing odd canvases out of stock and hanging them in mixed shows. I do not find Adler a very important artist, and the value of his quite staggering influence on some English and Scottish painters in the post-war years has, in my opinion, been vastly over-rated. His line is bold, his colour is bright but lifeless, and his figuration is decoratively robotic. The figure in his *Homage to Naum Gabo*, 7, is unusually lively because he has used a 'scribble' instead of his usual hard outline. Considered as homage to a serious artist, the picture borders on facetiousness.

There has been a large and well-presented exhibition of the paintings of Eugène Boudin at Marlborough Fine Arts

8

which, through no fault of the Gallery, didn't quite come up to expectations. Boudin is a delightful minor artist who becomes monotonous when a large number of his works are seen together. Some of the beach scenes of the early sixties in which the holiday-makers are allowed to be bright colour accents instead of adjusting themselves to the greyness of sea and sky, tend, unfairly perhaps, to steal the show. *The Empress Eugenie on the Beach at Trouville*, 8, is a delectable example, brimming over with period charm.

Robert Melville

SCULPTURE

ARCHITECTURAL SCULPTURE

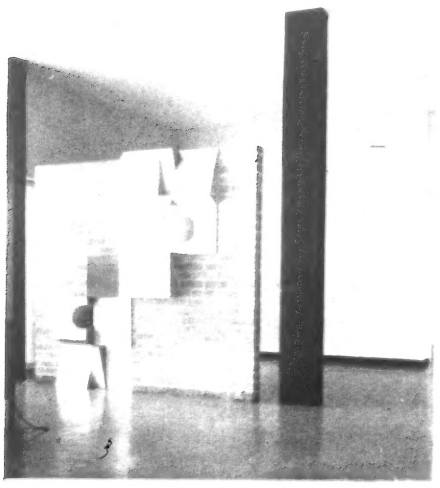
Much has been written and said lately about collaboration between architects and sculptors, but few satisfactory examples of sculpture employed in relation to modern architecture are to be found between the two extremes of the building conceived as a work of sculpture (when architect and sculptor are the same person) and the building which merely provides a suitable space for a work of sculpture (when collaboration can hardly be said to have taken place).

One promising approach to the problem is, however, illustrated by the abstract work of sculpture in the entrance hall of the recently completed wing of Musgrave Park hospital, Belfast (see last month's AR), in the design of which the sculptor, Mary Martin, collaborated closely with the architect, Richard Llewelyn Davies. Several points about it are worth noting which apart from the intrinsic distinction of the work may have contributed to its successful integration with the architecture.

One is that it is composed of the same materials that are used in the building: yellow bricks, natural plaster and stainless steel. Another is that it has a function to fulfil: to provide a partially transparent screen, directing traffic flow and giving some privacy to the waiting-space alongside the hospital entrance—needs which the sculptor has answered without compromising her own aesthetic conception. A third point is that the work of sculpture was constructed by the same process as the rest of the building: working drawings were prepared, quantities taken off for brickwork, etc. in the normal way, and the sculptural wall was erected by the bricklayers and other craftsmen already on the job, but under the sculptor's personal supervision.

The wall is free-standing, and almost closes the gap between two stanchions. Its two halves, laterally, are slightly staggered in plan, to give it stability since it is not rooted in the floor-slab. The angular elements, climbing round a central vertical in a movement based on a double curve, are inserted into the brickwork and faced with either plaster or stainless steel. They are symmetrical in the sense that the projections on one side of the wall, 1, become recessions on the other side, 2, at the same angle of inclination, either vertical or horizontal.

J.M.R.



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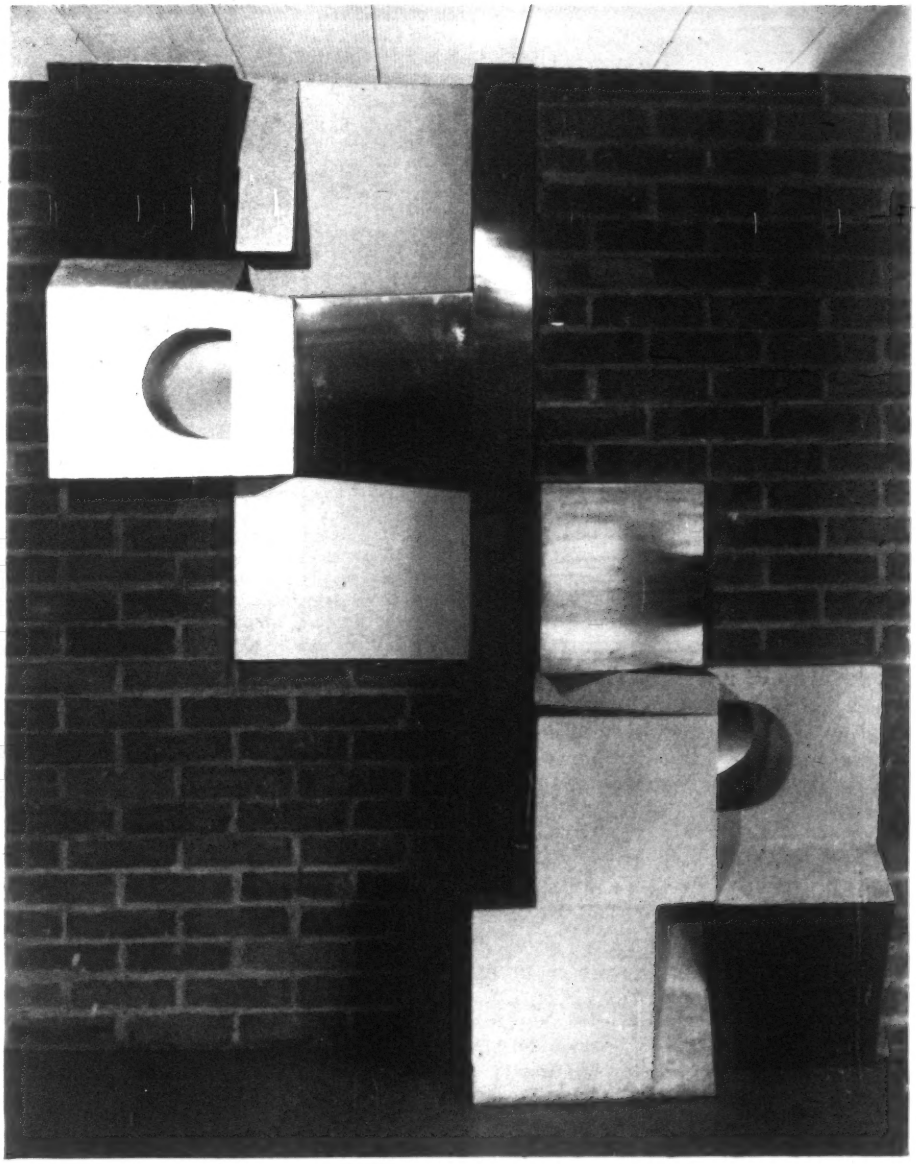

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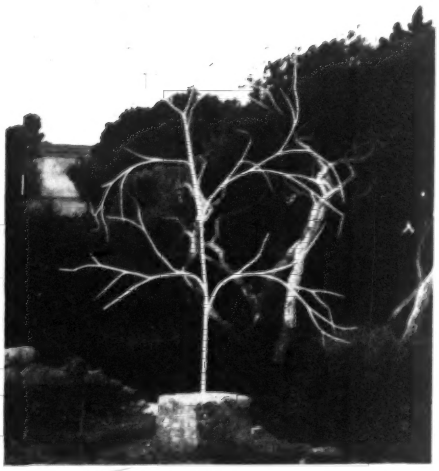
ART IN USE

FOUND OBJECT TRANSPLANTED

The philosophy of the objet-trouvé *depends more on the re-interpretation of the object in its new setting (statue in ditch, dead tree in art-gallery) than upon the original*



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nature of the object, but this nineteenth-century lightning conductor, 1 and frontispiece, page 158, scores on both counts. In spite of certain technological elegancies in its construction white-painted branches of iron rod, tipped with brass ferrules that once held platinum points its wild and organic form makes it look almost at home in its sea-coast setting of twisted pines. The reinterpretation is not shocking, nor its appearance incongruous. But its provenance is remarkable, since it was one of a pair that stood on the ridge of the roof of Cézanne's house in Aix-en-Provence. Beyond that, their origins are not known, but their gratuitously branching form seems to suggest a late recrudescence of sympathetic magic (presumably they were to conduct forked lightning, but not sheet) and a client-inventor relationship worthy of the pages of *Bouvard et Pécuchet* or Celine's *Mort à Crédit*. **Michel Santiago**

COUNTER-ATTACK

THE LCC'S NEW TOWN

The LCC wants to build a new town. The tentative conclusion has been reached, after investigating some 70 sites, that a site in the vicinity of Hook on either side of the Whitewater Valley in the north-east Hampshire (sic) probably presents the most favourable features.'

Hook is on the main railway line to Southampton and the South West; let us take a trip from Waterloo. After going through the solidly urban and the solidly suburban we pass Sheerwater (an LCC out-county estate), more suburbia at Woking, proposed LCC overspill near Farnborough, the Gas Turbine Establishment at Pyeslock and a big (and pleasant) pinewood suburb at Fleet. The train finally gets out into true rural countryside at (guess where?) Hook. Distance from London, approximately forty-two miles. On the main A30 road to the south-west exactly the same thing happens. The first real countryside is at Hook—except that it takes a good deal longer to get there because of the congestion due to outer London traffic using a road which is too small for it. This traffic falls off and the road gets wider leaving the true long-distance stuff comparatively unimpeded at a point just beyond—of course—Hook.

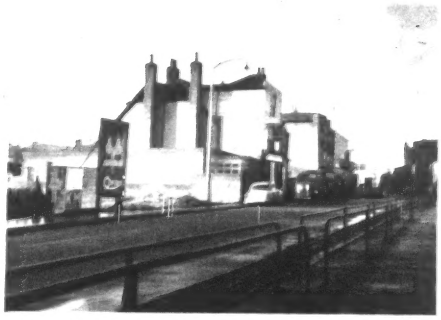
It begins to look as though there are not quite as many favourable features at Hook as there might be. One wonders in some alarm what the other sixty-nine sites were like, that Hook should be chosen to be the handmaiden of the LCC. A new town at Hook, in fact, however urban and conceived in whatever good faith, is in fact one more bit of legalized sprawl, extending London's penumbra another five miles to the south-west.

To forestall the letter-writers, angry or deeply hurt or partisan, I will start at another end of the problem with smooth mollifying phrases. Congestion in London—yes; dispersal of population to relieve it—yes, as long as it goes voluntarily; a specifically LCC organization for rehousing them—yes again, if only from the negative point of view that at this low ebb of provincial life the LCC architects' department will make a much better shot at the housing than the local bodies; the proof of this pudding, and what a pudding, is the awful new locally designed estate at Swindon for LCC overspillees.[1] But why a New Town? unless it is in the Dominions, in which case the very best of luck to it. And, much more to the point, why a New Town within fifty miles of London. One wonders whether what the LCC in fact wants is a vast conurbation Greatest London covering most of South East England; they only looked at sites east of a line from the Solent to the Wash and applauded Hook for being "at a convenient distance from London." Beyond this, they seem to imply, as the medieval map-makers did, are wild men.

A nasty note has crept into this approach too; the letter-writers are appearing again over the horizon. Let us try just one more. Britain has a lot of spare land—though not of New Town size—spoilt, under-used, half-industrialized, often with its own economic problems. It is in fact the waste-land of our first Industrial Revolution, not necessarily in the sense of derelict land but in the whole pattern of industrial areas like Oakengates or north-west Glamorganshire. The only real way to prove this is through air photographs and this we are going to do (town planners and theorists could actually go round these places, but that sort of thing is a bit out of fashion at the moment). Meanwhile here is some sort of list to give an idea of the sort of place that could take[2] more people and will in many cases have to take new industry or die. First there are the little conurbations—the nests of small industrial towns, usually on coalfields, which have taken away all the original rural character without giving back anything else in exchange: around Coalville, Madeley, Mexborough, Gorseinon, Carluke. Take away the need for coal—and this is now quite a possibility—and these places are in for real trouble. There are the fishing ports and the dockyard ports: Lowestoft, Portland, Fleetwood, Immingham, Peterhead; and there are the country towns which have ceased to be self-supporting and which would absorb at most one factory and its workpeople. (Such a pity, not a grand statistic on a return which can be used as good political copy. Just a delicate subtle job of topographical plastic surgery which needs tact, sympathy and humanity, three qualities which are not very evident in the present merry-go-round.) In fact all of these places need something quite different from the present folie-de-grandeur which seizes a bit of Southern English field pattern and cries New Town.

[1] i.e., people: individuals, men and women.

[2] Voluntarily on both sides, that is. This is not a sort of topographical chess with family units as pawns.



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New Town' Britain isn't like that. Wherever you choose to cut your first sod, somebody or something is there first and has been there for a very long time; we are not a new country but, by reputation, a mature, experienced civilized one. Let's act like it, and produce schemes which are related to the exact individual needs of the people and places involved, causing minimum interruption and maximum gain in character and vitality—and hence, if you like, industrial efficiency. The word for this—it has perhaps been heard before—is functionalism in its true sense, a functionalism which takes account of human situations as well as generalized social and economic ones, or rather takes care of them all indivisibly.

Most of these sites are far from south-east England. If the industrialists and the city officials have as low an opinion of the barbarous peoples of the North and of Wales as not to be prepared to move out of the Home Counties they are welcome to stay congested: they are trying to eat their cake and have it (apart from anything else, life really is more fun in Herefs. than in Herts.). But even on the LCC's apparently self-imposed terms there are friends-in-need of the

BLUEPRINT
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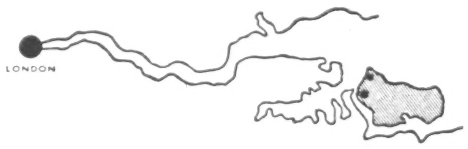

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7

sort I have been trying to suggest. For those in search of a town to regenerate, how about Sheerness and West Sheppey?

Sheerness is a dockyard town; the dockyard is due to close and the local council, naturally enough, is very worried about it. Part is falling in quietly, 1 and 2, part has been given a push, 3, and replaced by flats which are really quite impressively bad. 4. It will have ready-made factory buildings in this dockyard (some of them impressive enough to be a tourist showpiece eventually, see AR, July, 1957, pages 31 and 32). It has plenty of flat land suitable for more factories, it has vacant lots in the centre suitable for the sort of small scale infill of flats (*good* flats, that is) and small family houses which the LCC do well. It has at Queenborough a tiny old town nucleus which could become some sort of professional and business centre, and it has to the east near Minster, 6, another area like the original Basildon which was laid out last century as a speculation and never properly filled up with buildings, that could become a first-rate garden suburb. It also happens to be on the seaside, 5, and to have the unspoilt south-eastern part of Sheppey at its doorstep. Here a 'New Town' could be incorporated, gently and carefully, without urbanizing a single view that is not compromised already. Meanwhile, however, the LCC is a 'bureaucratic ogre' and the men of Hampshire are 'rural backwoodsmen' and the people in Sheerness worry about their jobs. It's not a bad plot for a tragi-comedy.* **Ian Nairn**

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* At the time of going to press the LCC's proposal for Hook is being opposed by the Hampshire County Council. If the idea is not dropped here is the nucleus of a disastrous public inquiry here. After this article was written the advertisement, 7, appeared on the back page of *The Times*. Won't somebody put two and two together?

BOOKS

WHITE ON PERSPECTIVE

THE BIRTH AND REBIRTH OF PICTORIAL SPACE. *By John White. Faber & Faber. 63s.*

Dr. John White has at last produced that history of perspective down to the Renaissance, of which enticing fragments have appeared in learned periodicals, giving a foretaste of what was evidently to be a masterly treatment of a complicated and yet inescapable theme. To say that the result is slightly disappointing is only to say that expectations had probably been pitched rather higher than the nature of the subject and the circumstances of the times permitted. For let it be said at once that this is a remarkable and an indispensable book; and the reader who will give himself the trouble of following a difficult argument as tenaciously and as perspicaciously as the author himself will be richly rewarded: the disappointment comes from two main causes—one presumably inevitable and the other perhaps disputable. The first cause is the usual one—that the illustrations are too few and too small, with the result that a train of reasoning which would have been easy enough to understand with the help of lantern-slides on a large screen must sometimes be taken on trust in process blocks only a couple of inches square. The second cause is peculiar to the book, and arises out of a decision explicitly referred to in the introduction—namely, to deal first with the rebirth of pictorial space in the Middle Ages and the Renaissance and then to go into the question of its birth right at the end of the book.

This was an unfortunate decision. Dr. White adopted this arrangement, he says, because 'there is no escaping the fact that Greek pictorial art has almost vanished, while a relatively large proportion of the paintings and reliefs of the Renaissance has survived. It is possible to speak with certainty about many aspects of perspective theory in the fifteenth century. In antiquity its very existence must be proved . . . It is for these reasons that the art of antiquity is considered at the end, instead of at the beginning of the book.' Yet if we take his argument to pieces and reassemble it chronologically, the book becomes easier to follow, especially since the chapter on 'Spatial Design in Antiquity' is in some ways the most remarkable in the book in its own right, as well as serving as an excellent introduction to Dr. White's general method of analysis. It is, of course, a reduction of a long paper published in the *Journal of Hellenic Studies* in 1956; and those who read it in that form, and profited by its conclusions, naturally expected to find it at the head instead of at the tail of the complete book. As things are, we plunge without warning into the vexed question of Cimabue and the frescoes in the Upper Church of San Francesco at Assisi, and take some time before recovering our breath.

The most important discoveries of Dr. White's chapter on spatial design in antiquity are as follows: first, that Lucretius and Vitruvius meant what they said; and that the theory—or at least the practice—of vanishing-point, or 'plane,' or (as Dr. White chooses to call it) 'artificial,' perspective was known in antiquity; and that certain paintings in the so-called Second Pompeian style bear contemporary witness to this; and secondly that 'spherical,' or what Dr. White calls 'synthetic,' perspective was at least empirically understood in antiquity; and that certain paintings in the so-called Third and Fourth Pompeian styles hint at such an understanding. This is a conclusion of the first importance: it had hitherto been argued that while Pompeian painting, and therefore presumably Hellenistic painting, showed some signs of a rudimentary feeling for 'axial,' or 'spherical,' perspective,

'vanishing-point' perspective was not discovered till the days of Brunellesco and Alberti. But Dr. White's analysis of the crucial passages in Lucretius and Vitruvius, which is of great subtlety, does seem to prove his point; and his book is therefore rightly called 'The Birth and Rebirth of Pictorial Space.'

The chapters on the gradual and piecemeal conquest of foreshortening and perspective in the two centuries before Brunellesco and Alberti are elaborately and convincingly worked out; the development of the theory of 'artificial' perspective, and in particular the function of Ghiberti as an intermediary between medieval and quattrocento speculation on the optics of perspective, may then be demonstrated; and finally the part played by Uccello and Leonardo in raising the problems of 'synthetic' perspective is clearly shown – it was evidently the higher mathematics of 'spherical' projection that kept Uccello out of bed at night, as well it might. Contrasted with the Italian interests in theory, Dr. White shows us the Limbourg brothers and Fouquet in the north faithfully recording their ocular perception of the curvature of physically straight lines and their sense of perspectival diminution in a vertical as well as in a horizontal direction.

It is a pity that Dr. White has to stop just at the point where the dilemma of perspective becomes most acute, and most acutely felt – in mannerist and baroque painting. Because it is there that the shortcomings of plane perspective and the need for spherical perspective really become urgent: mannerist painting did indeed exploit for its own perverse purposes the extreme distortions of which plane perspective was capable when the vanishing-point was shifted from the centre to the edge of the visual field; and baroque painting, with its 'wide screen' requirements, became outrageously impatient of the fixed peephole viewpoint. Let us hope that Dr. White will deal one day with these fascinating problems in a companion volume: it would be delightful to see the analytical acumen which he has brought to bear on Vitruvius and Brunellesco and Alberti and Uccello applied to Tibaldi and Pozzo, to Saenredam and Carel Fabritius, to Hoogstraten and Houckgeest.

Roger Hinks

PECULIARLY SCOTTISH

THE ARCHITECTURE OF SCOTTISH POST-REFORMATION CHURCHES 1560–1843. *By George Hay. Oxford, Clarendon Press.* 63*s.*

Some years back, I took the bus from Edinburgh to Lasswade to see a church designed by Robert Adam. I knew what to expect, because Bolton reproduced the plan. But what I saw was not what I expected. Although of the right period, the building neither corresponded to the plan in Bolton's book nor, clearly, was designed by Adam. Who did design it? There seemed to be nowhere to look for the answer, and so the question was stowed away unanswered in that corner of the mind in which one keeps such mementoes of past holidays. And now comes Mr. George Hay with – no, not the answer definitive, but a suggestion that explains the character of the building as neatly as could be. Pointing out that the architect had evidently seen Adam's design, he continues: 'It is not unlikely that . . . (he) was John Clerk of Eldin. His wife was Adam's sister, Susanna, and he may have been responsible for commissioning his brother-in-law to prepare the first design.' He adds: 'After many years of structural neglect, this attractive kirk has been abandoned and left derelict.'

There you have an illustration of the circumstances that make *The Architecture of Scottish Post-Reformation Churches* a timely book: the subject has been neglected, and many of the buildings themselves have suffered the same treatment, or worse. Whether the book will have any effect on the latter state of affairs is of course doubtful; for one thing, the parish ministers who failed to reply to Mr. Hay's letters are unlikely to read his book. As a contribution to architectural scholarship it is admirable – a thorough and well-rounded piece of work.

Although Scottish church architects in the period under review might borrow their detail from the sources that happened to be convenient at the time – from the Netherlands at the beginning of the seventeenth century and even from England at the end of the eighteenth and beginning of the nineteenth – they showed an independence and often an originality in the broader aspects of design that enable one to regard them as a truly national school. Liturgically, the controlling factors were the necessity of giving prominence to the pulpit and the need for space in a central location for the long communion tables. One of the favourite solutions was the T-plan church, which is, as Mr. Hay says, 'a peculiarly Scottish manifestation.' It originated in the sixteenth century when to the typical simple oblong of the Middle Ages was added a wing (called in Scotland, with more respect for the origin of the word than English usage shows, an aisle) containing a family pew in a gallery, with a burial vault below; soon churches were being built to this T-plan from the ground up. If there was to be a tower, it was placed in the middle of the other long side of the church, opposite the 'aisle.' The result can be puzzling to English eyes, accustomed to western towers; confronted with such a church as that at Carrington, Midlothian (Fig. 16), or Yester, East Lothian (Fig. 17), we are temporarily disoriented.

Centrally planned churches were popular, getting a remarkable start, and for Britain a remarkably early start, at Burntisland, Fife in 1592; Mr. Hay shows that this church cannot very well have been inspired by Dutch models but must rather 'be regarded as a sturdy home product.' For cruciform churches, of which more were built in Scotland than in England in the seventeenth century, the Greek cross was preferred (e.g. Lauder, Berwickshire, designed by Sir William Bruce, Fig. 21 and Plate 8b); Canongate church in Edinburgh, 1, however (Fig. 22 and Plate 11b), is an aisled Latin cross which incidentally seems to have been set out by its architect, James Smith, according to a system of equilateral triangles. In the late eighteenth century and the early nineteenth some

1, Canongate church, Edinburgh.

interesting octagonal designs were executed – as also, of course, in England; Mr. Hay's examples include Dreghorn, Ayrshire (Fig. 33), St. Paul's, Perth (Fig. 42), and Glenorchy, Argyll (Fig. 43). Then St. Andrew's, Edinburgh, designed by Andrew Frazer in 1785, has an elliptical nave, while W. H. Playfair's church of St. Stephen in that city, which dates from 1828, has a plan which, remembering the chapel at Florida Southern College, one is tempted to call Wrightian.

I have concentrated on the planning of these buildings both because that is where the heart of the matter lies and because the laudably numerous plans in Mr. Hay's book invite and facilitate such treatment. It remains to say that the six chapters on architectural development are followed by five shorter ones on features and fittings, an inventory of churches, and about a hundred photographs.

Marcus Whiffen

Shorter Notices

THE ROUND TOWERS TO ENGLISH PARISH CHURCHES. *Rev. C. J. B. Messent. Fletcher & Son, Norwich.* 30*s.*

This is a book of all the English round towers, each one with a description and a full-page drawing by the author; such a collation has never been attempted before and is very valuable. Nearly all are in Norfolk and Suffolk. How did they get there? We don't really know; why, if there wasn't enough stone for quoins was there always enough for windows (and why not round churches as well as round towers?). How did they come to look so much like Ravenna? How do they fit in with the Celtic round towers? Were the oldest ones after all some early kind of Martello tower against the Vikings which set an architectural fashion?

The queries are probably unanswerable. In any case, it is good to have all the existing towers illustrated in one book. One is missing from the list – the round tower of the old church at Tooting, of all places, which was demolished in the 1820's. Drawings of it survive.

I.N.

SKILL

SOIL AND WASTE PIPING

by John Carter

After a century of costly stagnation, sanitary plumbing has, during the last ten years, undergone rapid change. Foul air has been found to be less deadly in itself and to circulate in a different manner to what we had imagined. In this article John Carter recalls the official pronouncements on this; and illustrates equipment which has been developed to put our new-found theory into practice.

It is curious to notice in architectural history the way in which different fields in building technique advance out of step with each other. For some, we are content with the same solutions year after year; for others we constantly seek new and better adaptations.

Before the war, in the matter of structural frameworks, architectural students were taught both the 'how' *and* the 'why' the calculations of stress relative to the shapes of members. But in plumbing they were taught only 'how' the pipes are to be festooned about the building. There was a body of theory to support the practice, but it was in the nature of an explanation of custom rather than a safe platform of criteria for departures from custom. Steel frames and sanitary plumbing came into extensive use at about the same time in the last century and both are relevant to considerations of human health and safety. Yet while the one advanced, the other stood still. Engineers and scientists are more interested as a race in steel and concrete and these materials are the basis of large and wealthy industries. We know that the more ancient a craft, the more difficult it is for science to gain a foothold. Whatever the reason, it was not until 1949 that extensive hydraulic and statistical studies yielded criteria from which we could design simple piping to convey waste water from fittings to the underground drain without letting foul air into the building.

technique and aesthetics

Steel frames and sanitary plumbing may seem an unlikely couple for comparison but the relationship between their functional development and aesthetic standing reveals the paradox beneath the surface of architectural thinking.

Early steel frames had to be concealed from view like servants who should work unperceived, without symbol in the scene they helped to maintain. But with the moral revival of functionalist theory in the 1930's this hierarchic order became intolerable and democratic aesthetics insisted that servant and master were equal. The frame must be 'expressed.' But for some reason the services pipes and cables were not admissible in this pursuit of democratic honesty. Sanitary plumbing had been 'expressed' for years by compulsion of the byelaws yet the campaign to take them inside the building was not entirely from motives of frost protection. Stanchions and beams were felt to be ugly only by reason of the way they were shaped and arranged, but pipes were felt to be intrinsically ugly. Internal pipes were, and still are, chased or cased out of sight. Even those who are touched by the clarity and purpose of an installation put in by a plumber of sensibility, regard it as not belonging to the world of accepted forms.

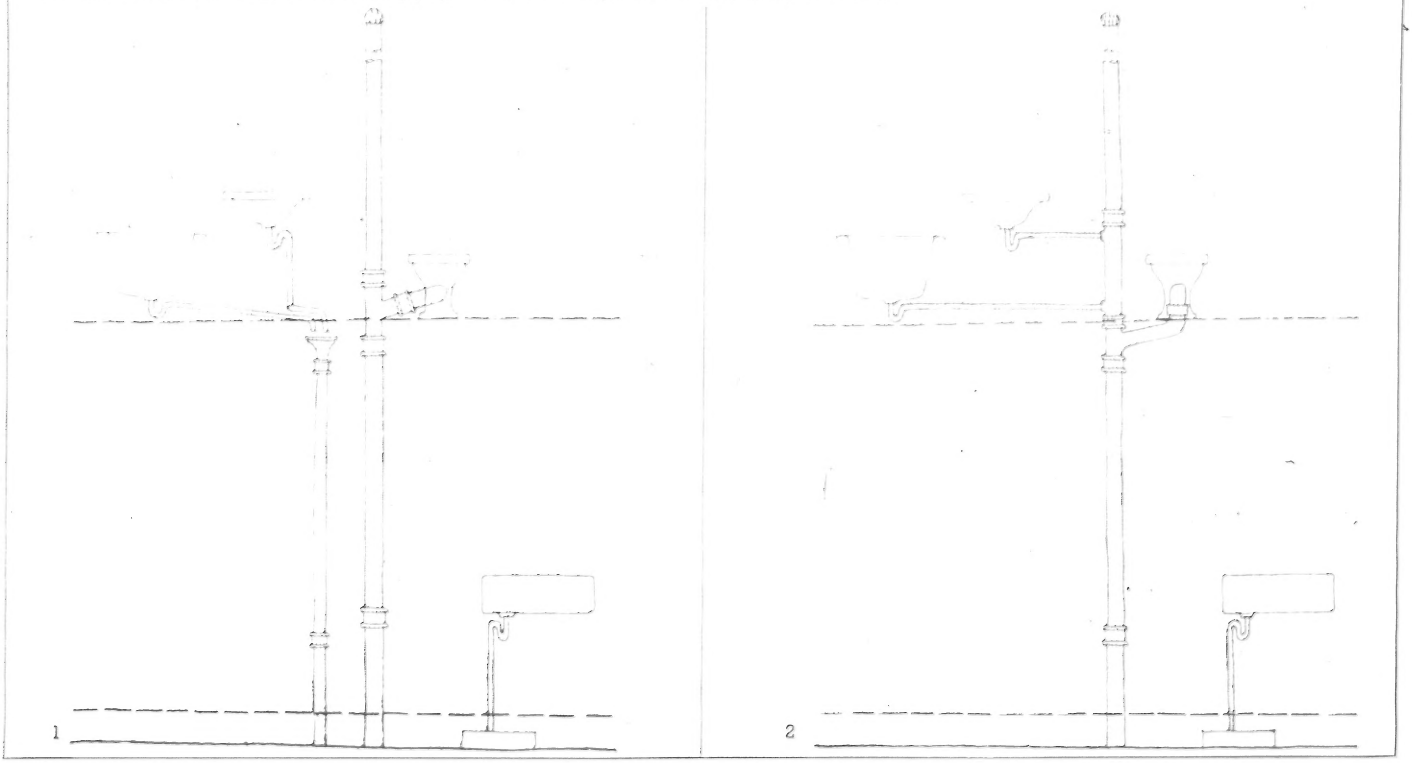
Water must come by routes unseen, to depart at the pull of a plug to destinations unknown. Likewise with electric wires and heating systems. Architects and architectural historians commonly regard the battle of the modern movement as having long since been won on the field of 'design' and to have moved into the field of organization; but these pockets of hierarchic aesthetics remain. And they remain significantly in those specialist spheres where the architect has little or no technical expertise where all he can do is to provide a seemly packaging for goods he does not understand. The consequences are that the specialist must strain his resources, extend his repertory to an unfunctional and uneconomic degree to meet demands. Hence the weary proliferation of devices in catalogues and hence the bright promises of manufacturers' representatives. As late as 1943 an investigating committee[1] could say 'We have been impressed by the need that buildings should wherever possible be planned so as to allow good and economical plumbing to be carried out.'

theory and practice

It is not generally realized that internal single stack plumbing is really a return to the early nineteenth century when baths and closets were first installed *inside* buildings. In those days everything discharged

[1] Post-War Building Studies no. 4, Plumbing. HMSO 1944.

1, 2, two-pipe and single-stack systems in houses. The new design criteria for the latter do away with the separate waste stack and bring a more disciplined order and clarity to the piping that remains. There is probably no need for the trap under the sink.

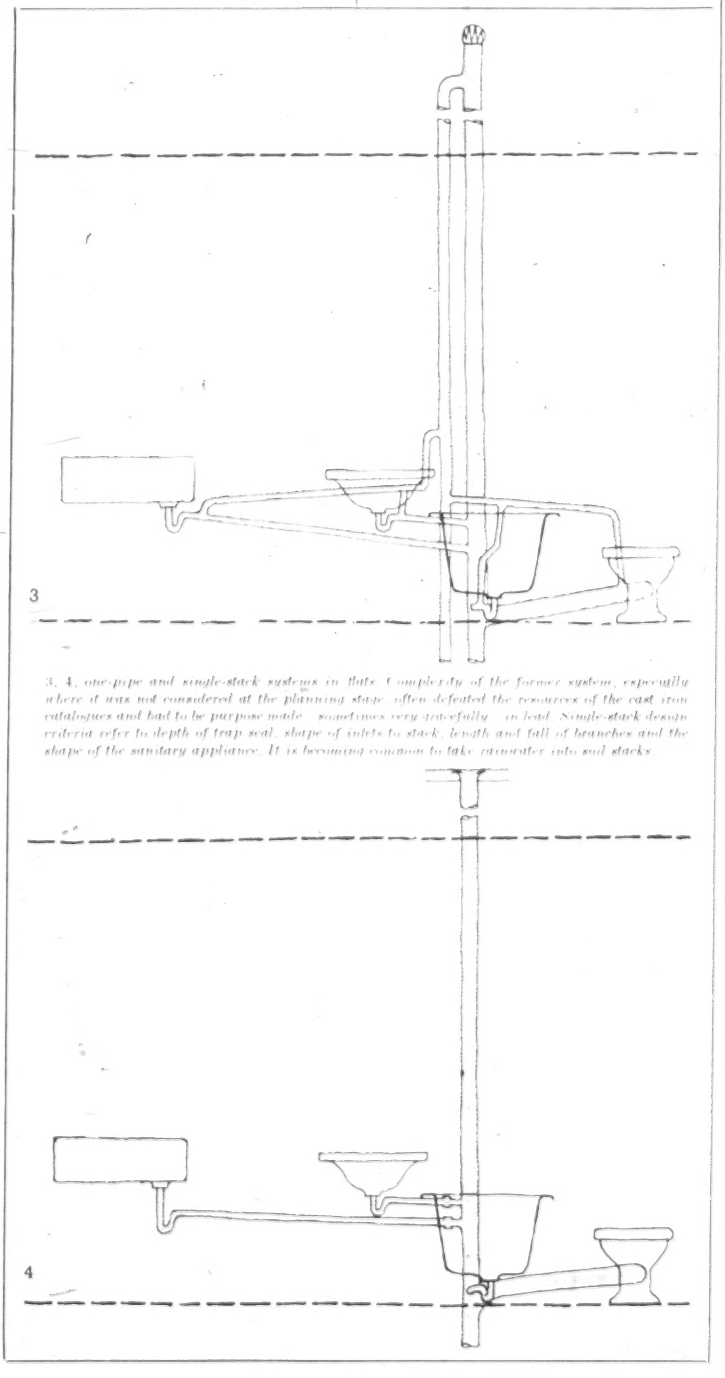


into one stack, leading straight to the cesspool, without traps or vents and all was of unreliable workmanship.

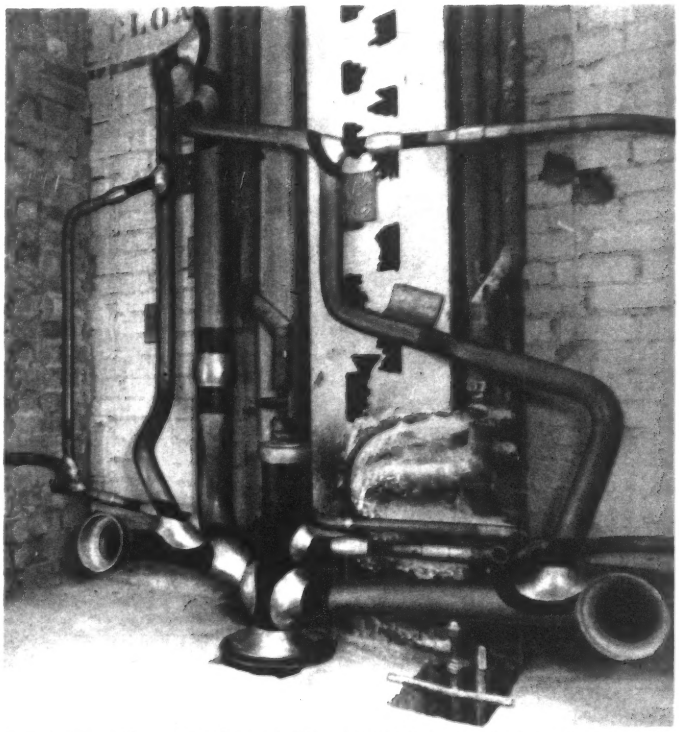
The escaping foul air and the danger to health that it was thought to be, caused the pipes to be put outside, where they remained for a hundred years or so. This practice was given legal force by byelaws like these: 'The person erecting any new building shall . . . not allow any inlet to any drain to be made within any building except such inlet as may be necessary from . . . any water closet and he shall cause the pipes . . . to be furnished with a siphon trap(s) and to be taken through an external wall . . . and discharge in the open air . . .'[2]

[2] Borough of Leeds. Byelaws for new streets and buildings. Approved by the Local Government Board 1878.

Thus it is that common practice presents that curious mixture of paradox and ambiguity which, according to foreigners, is characteristically British. The sequence of reasoning seems to be something like this. First, drain air smells foul and must surely be dangerous; so the pipes must go outside the building with the added convenience that bursts when they occur will do no damage to the building and can be got at. Therefore, second, you fix traps at all the appliances to fence off the foul air, but these may not be a sufficient guarantee, so you fit a second line of defence in the shape of a gully trap and, more often than not, a third line of defence in the interceptor trap. The fact that the fouling of drains which did occur nearly always happened at manholes did not discourage their installation



3, 4, one-pipe and single-stack systems in flats. Complexity of the former system, especially where it was not considered at the planning stage, often defeated the resources of the cast iron catalogues and had to be purpose made – sometimes very gracefully – in lead. Single-stack design criteria refer to depth of trap seal, shape of inlets to stack, length and fall of branches and the shape of the sanitary appliance. It is becoming common to take rainwater into soil stacks.



5, ravishing world . . . a plumbing installation at Bristol. Care in the shaping of black around the joints betrays the work of a plumber of sensibility. Photo courtesy Bristol corporation.

at every junction, change of line or change of gradient increasing the opportunities for blockage and fouling to take place. A final gesture was the insistence by the byelaws on the fresh air inlet, which more often than not made a splendid source of bad smells at a point where they would be most noticed. It may seem a little unkind to add that recent research[3] has proved that the enthusiastic embedding of drains in concrete, favoured by sanitary inspectors, increases instead of diminishes the risk of fracture.

Inside the building, bath wastes which 'glugged' when you pulled the basin plug, or w.c.'s which incontinently lost their seal water cleaving the paper behind) were as common as those which did not. Misbehaviour of this kind was quoted as fervently by those sanitary inspectors punctilious about vent connections not farther than 12 in. and not nearer than 3 in. to the trap crown, as by those who put their faith in anatomical looking re-sealing traps.

We had to put up with both lack of agreement between theory and practice, and the capricious variations in requirements from district to district a feature of Public Health Act administration which stubbornly survives even acceptance of single stack design criteria.

post-war optimism

But in any tradition that has congealed into immobility there are, either within or outside, the seeds of new life. In the 1930's a very few experimental installations dared to connect bath, basin and w.c. directly to the stack—no gully, no hopper head, no separate waste stack, not even flanged and cross wired puff pipes. These were sought out by a Government Plumbing Committee, set up along with some 25 other committees in the closing years of the war, to look into the future. With sheets of newspaper and buckets of water the committee had tests made in London, Birmingham and Coventry of installations like these and they measured the seal losses. They made other investigations, saw what was done in America and with an optimism characteristic of the middle 'forties came out with conclusions that were modest and hopeful:

'Simple one-pipe systems for one- and two-storey housing can be designed to operate under practical conditions of use without siphonage of traps, in spite of the absence of special trap ventilation.

'The size of traps and branches has a controlling influence on the liability to siphonage, the use of 4-in. stacks with 2-in. waste branches giving safer conditions than obtain with smaller stacks and branches.

'When the washbasin branch is run directly to the common stack it is much less liable to siphonage of its trap than when dropped vertically to the bath branch.'[4]

There was curiously little discussion in this report of the question of whether sanitary plumbing should be inside or outside the building. Some byelaws had relented on this point but habit was still strong.

The committee strongly recommended further research, but the ensuing seven years saw very little progress. All that the Housing Manual of 1949 had to say was 'Any one pipe system should have full trap ventilation unless it can be shown by tests that this is not necessary.' Internal piping was ambiguously discouraged: 'Internal soil stacks should not be adopted without careful consideration of possible health hazards by leakage, taking into account the quality of labour available locally for pipe jointing.'

[continued on page 219

[3] Symposium on New Trends in Plumbing and Sanitation. By Clarke, Sobolev and Griffiths. Read to the Royal Society for the Promotion of Health, October 16, 1958.

[4] Post-War Building Studies no. 4. Plumbing. HMSO 1944.

continued from page 218]

research at last

In the following year, however, research began, the first results reaching the technical public in 1952 through Building Research Station Digests 48 and 49. These confirmed the Plumbing Committee's hopes (if not their ideas about pipe sizes). Precise design criteria were given, referring to pipe falls, stack connections and the shapes of sanitary fittings which at last allowed confident design of single stack installations in two-storey houses.

Two years later, even more startling possibilities were demonstrated at a Press conference honoured by both the Director of Building Research and the chairman of the Building Research Board. These were that single stack plumbing could be used up to no less than five storeys in height without the venting of any trap. It was claimed that elimination of the waste stack and the anti-siphonage network would save £16 per dwelling.

Plumbing, perhaps for the first time in its life, made exciting technical news.

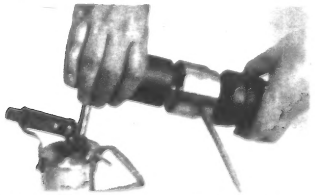
the industry

In this advance out of prodigal Edwardian custom, there was one flaw. The manufacturers of pipes and fittings, finding themselves in an unprecedented sellers' market in the post-war boom years had ignored the hints of the 1944 committee and thus were relatively unprepared for single stack plumbing. Eager architects searching the cast iron catalogues or the pages of BSS 416 : 1944 for fittings with which to construct such an installation were baulked or had to use purpose-made copper or lead at exorbitant prices. Behind the scenes persuasion by BRS eventually induced sections of the cast iron trade to make moulds for multi-

6, costs: for the plan shown, the one-pipe system at five storeys uses about one-third more cast iron, nearly twice as much lead and costs £16 per flat more than the single-stack system.

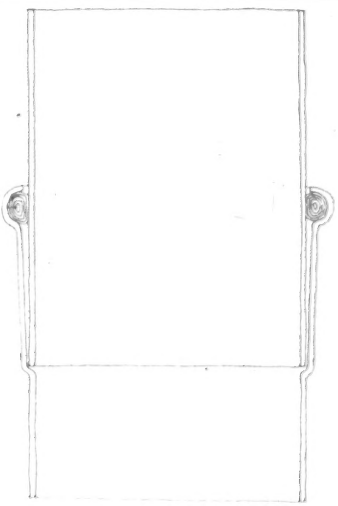
branch fittings. Catalogues began to appear showing what to all appearances were stock fittings, but enquiry soon revealed that they were regarded as 'specials' made only to order (with price and delivery time to match). Behind this rather unsatisfactory situation lay two problems.

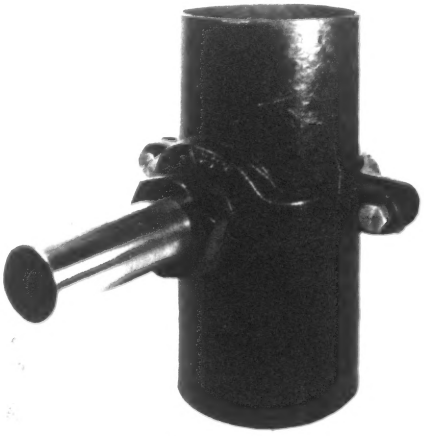
One was (and still is) that standardized arrangements of sanitary fittings and therefore of waste connexion positions have no place in up-to-date architectural thinking. The other, that byelaw requirements



7, the 'Polyfusion' method of jointing plastic pipes. This mandrel is heated with a blowlamp, the spigot end of the plastic is pushed on to one side and socket on to the other. When the plastic surfaces are sufficiently softened, the two ends are withdrawn and pushed tight together, until the weld has cooled.

8





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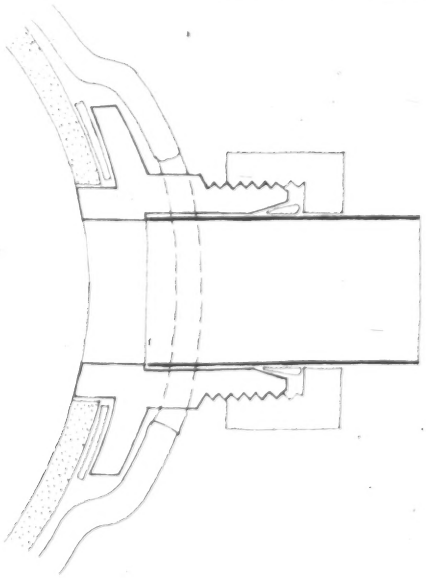
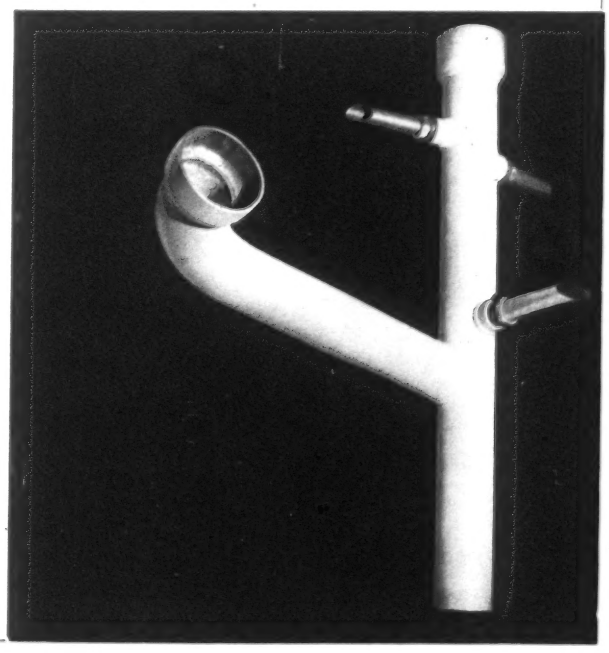


8, jointing: the 'push fit' method, in which the spigot end of the branch pipe is smeared with oil or graphite and pushed into the socket, where the neoprene ring inside the flange effects a watertight seal.

9, the 'Fixacon' method for taking waste branches into cast iron stacks. A hole is bored into the stack (in situ if necessary) with a Cronkon cutter. Next, the plastic saddle and washer are clamped on to the stack. The saddle has a screwed compression joint to secure the copper branch pipe.

10, a purpose-made soil and waste fitting in copper.



10

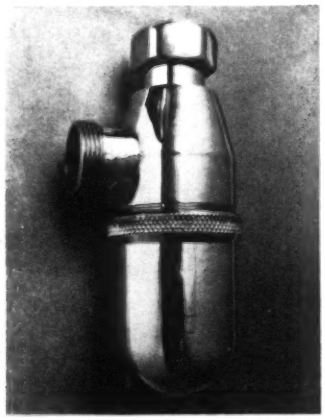
11, *plastic trap, branch and stack. This material has made greatest headway in the field of chemical plumbing, but it is beginning to find tentative use for waste plumbing. Note that the junction of branch with stack does not conform with single-stack criteria. The makers issue a warning that wherever the material is 'under strain or pressure' its temperature should not be allowed to exceed 140 degrees F for periods longer than that of a 'short flush.'*

and even more the idiosynerasies of sanitary inspectors vary from district to district. Thus the number of 'standard' multi-branch fittings for sanitary plumbing required to meet the variety of demand made rationalized quantity production very difficult.

Variation in byelaw requirements is quite indefensible when there exists a secure body of theory and when variety of 'local conditions' is of little significance. One authority will insist that the bath waste boss be *above* the w.c. branch to avoid induced siphonage; another that it can be at the same height provided boss and branch are not diametrically opposed. A third will demand a parallel branch to bring the bath connexion 'at least 8 in.' below the w.c. branch and a fourth will smile sceptically at the words 'single stack' and make you vent the traps. And the zeal of sanitary inspectors in keeping foul air out of the building has not been diminished by the realization that drain air is not, after all, injurious to health. A Departmental Committee of the Local Government Board said: 'In sewers old and new, ventilated or unventilated, in which the sewage is moving and not stagnant, the air differs but little from that of the atmosphere outside.' This report appeared 46 years ago!

ranges of fittings

So far this story has been concerned with plumbing for dwellings, but other classes of installation have not been forgotten. Research into the behaviour of ranges of fittings—rows



12, *a neater than usual type of 'bottle' trap, easier to clean than most.*

of w.c.'s and lavatory basins—is now in its closing phase. Here too it has been the custom to connect basin traps and w.c. outgoes to two collecting pipes—one sloping downwards to take the waste, the other sloping upwards to vent every trap.

13, *traps. The swivel trap simplifies the problem of turning a corner in the waste branch for example, under the back of the lavatory basin.*

One simplification sometimes employed for basins is to connect waste tails direct to the collecting pipe which terminated in a trap at its connexion to the stack. Sanitary inspectors are not always happy about the smell from such deposit as gathers along the invert of the collecting pipe. Research work has shown that in these cases, the collecting pipe should be of a diameter large enough not to fill up solid with water when a basin is discharged and thus cause induced siphonage; but small enough for a depth of water sufficient to give a self-cleansing velocity. The sizes of pipe appropriate to ranges of basins with spray taps would not be the same as those for ordinary taps and waste plugs, because of the very different discharge rates of these two systems and it would be smaller than sizes used at present.

With ranges of w.c.'s up to eight in number it appears that the venting of traps to prevent induced siphonage is quite unnecessary for a top-floor installation, and might be unnecessary for two floors.

For a number of floors, where there is a likelihood of pressure in the stack varying from that of the atmosphere by more than a certain degree, some venting would be necessary, but not of every trap. The suggestion is, pending final results, that one vent to each collecting pipe below the topmost floor would be sufficient and that this need not be in the theoretically best place at the upstream end of the collecting pipe. It could be at the lower end, nearest to the vent stack. It appears that neither the fall of collecting pipes nor the shape of w.c. connexions to them is very significant.

Standing back to survey this world of sanitary plumbing a world to which the rational approach has come very late in life one sees the need for two closely related further developments. One, the standardization of byelaw and sanitary inspectors' requirements throughout the country. Two, a standardization of stack connexion positions to permit a reasonable number of different plan arrangements of sanitary fittings, to give a defined framework within which the manufacturers of cast iron, copper, steel and plastic pipes and fittings can contend. To these we might add a third: to exert a necessary economic discipline upon the architect.

THE INDUSTRY

New wall finish

Wall finishes is an element for which older techniques paint and paper are holding their own against more recent (and often less sympathetic ones). A new alternative now appears, looking like paper, but with more durable qualities, Lintex. It is described as a plastic-fortified, cotton-backed covering and looks rather like matt paper-covered thin canvas. Unlike paper, it can be washed and will resist scratches.

1, *wall covered with Lintex.*

There are an alarming number of patterns 57 and the material is made in 9-yard rolls, 22½ in. wide, which cost 42s. This means that a 10 ft. by 10 ft. room could be done for about £10 or £12. Special Lintex paste must be used, applied to the wall and not to the material.
The Wallpaper Manufacturers Ltd., Manchester.

Building for warmth

Those who are puzzled and distressed by competition between our nationalized industries may take heart from a tiny co-operative venture by the three promoting organizations for gas, electricity and coal. It is a small booklet called 'Building for warmth,' addressed to the informed layman 'about to build or to buy a house.' It begins by explaining in workmanlike terms, what heat loss is and how it happens. Following pages illustrate various constructions for walls, floors and roofs and windows, giving the U values. A concluding section deals with weatherstripping and insulation of the hot water system and finally there are two sketches of a straggling house plan of high cube super ratio compared with a compact house. It would be nice if this booklet could be followed by another giving the impartial facts about heating systems (with costs, capital and running).
British Electrical Development Association.
Coal Utilisation Council.
Gas Council.

Diverse properties of aluminium

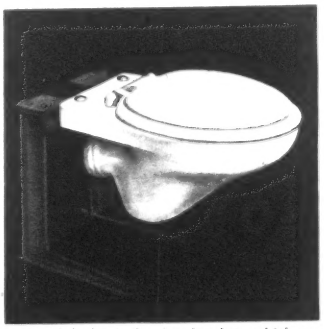
The Aluminium Development Association has in the past produced several good technical booklets to explain the uses and diverse properties of this material. Now comes a rather more ambitious production, on coated paper with colour photographs, called 'Aluminium Windows.' Section I uses large photographs of prominent buildings to show how many of the better known architects use aluminium windows. Section II tells us a little about different alloys, jointing methods and finishes; while Section III discusses installation and glazing. Section IV on weathering and maintenance is followed by two appendices. The first illustrates BS 990 : 1945 the familiar standard window types, of steel origin (with alternative horizontal bars dotted on) and the second is a glossary of terms and definitions. This includes the unfamiliar nomenclature of various aluminium alloys. On the back page is a list of the member companies of the Association.

This 60-page production, partly a technical treatise, partly a catalogue and partly prestige advertising would be quite useful for the architect to have on his shelf. Perhaps its strongest claim to serious attention is the honesty about corrosion and maintenance. We seem now to have passed the days when aluminium was presented as a maintenance-free material.

The Association has also issued a two-page chart of the colours (with samples) that you can get by anodising—referring readers to the Architects Journal Information sheet 41 B2 for appropriate specification notes.
Aluminium Development Association, 33 Grosvenor Street, S.W.1.

Corbel closets

At a recent Symposium held by the Royal Society for the Promotion of Health a speaker drew attention to the fact that corbel closets were coming back into favour. The great advantage of these is of course the



2, *a corbel closet showing brackets which are normally buried in wall and floor.*

easier cleaning of floors; the difficulty, that of supporting them adequately to take the superload without disturbance of the outgo joint. For the one illustrated, the makers suggest burying the muscular-looking brackets into wall and floor. This is for cases where the back wall is not able to tail down cantilevers; where it is, a more modest bracket is available.
Ideal Boilers and Radiators Ltd., Ideal House, Great Marlborough Street, W.1.

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The Perfect Combination

Combinol Gloss Paint

and

Valspar Eggshell Lustre

Combinol Gloss Paint

Tough — Brilliant — High Gloss Finish.
Excellent spreading power and opacity.
Resists all weather conditions.
Recommended for coastal and industrial areas.

Valspar Eggshell Lustre

Beautiful Eggshell Lustre Finish.
Easy to apply with wide brush, roller or spray.
Resists steam and condensation.
For all interior surfaces.

Also available in the British Standard Range (101 colours)

Manufactured by Goodlass Wall & Co Ltd

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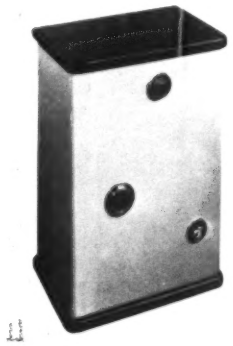
Paraffin boiler

A very neat oil-heated boiler of small domestic rating and unpretentious appearance has been produced. It is a 'blue flame' type using paraffin, giving a rated output (for heating) of 15,000 Btu per hour. Alternatively it could be used for hot water supply. The casing, which is 18 in. by 17 in. by 25 in. high, contains a 2½-gallon fuel tank. The oil flame is thermostatically controlled and a very high efficiency of 81 per cent is claimed. This little boiler might be very useful for small flats, perhaps conversion jobs, although it is not cheap—45 gns.
Mackey Boxley (Steelworkers) Ltd., 21 Caledonian Road, N.1.

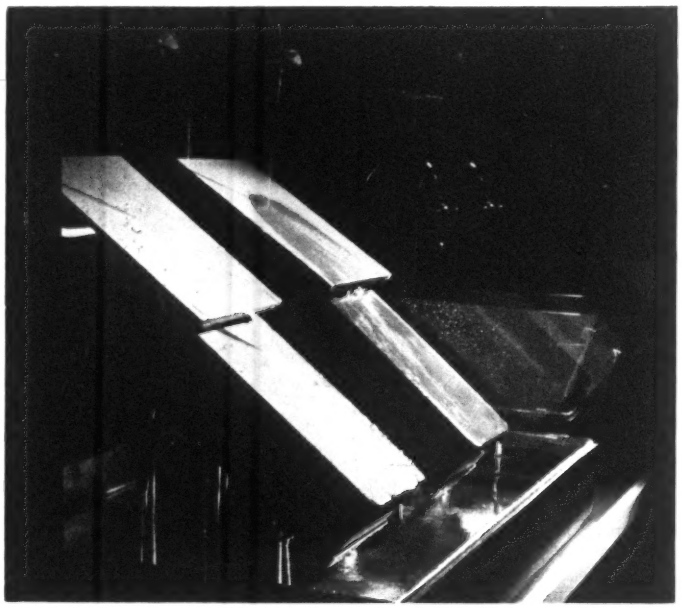


3, thermostatically controlled paraffin boiler.

Diversity of silicones

ICI have printed a cheerful pamphlet on silicones, the chief object of which is to illustrate the astonishing diversity of their uses—from babies bottle teats to the insulation of electric motor armature windings. For building, the main use is in the treatment of walls to resist moisture penetration. Silicone resins penetrate to about ¼ in. from the surface, lining but not closing the pores of brickwork or stone. The rather splendid photograph shows a treated and an untreated brick.
ICI, Milbank, S.W.1.

4, silicone treated brick on left and untreated brick on right.



Flush Door Brochure

A comprehensive brochure on flush doors beginning with a 'Statement of Policy' and ending with a 'Guarantee' has been produced by Leaderflush. It gives specifications for five main types of door and prices. The cheapest skeleton framed internal door is 3s. 6d. per foot super and dearest solid core external door is 7s. per foot super. Doubtless these figures vary with size of order. The statement of policy tells us that only plywood is used for facing and that the object of the company is '. . . . to provide architects and contractors with flush doors of a quality and reliability in which they may have absolute confidence.' The guarantee is of replacement, free of charge, should any door 'show defects of workmanship or material due to bad or defective manufacture, at any period, regardless of time or age, provided the doors have been stacked flat in a dry place. . . .'

One fact that was news to me was that only Western Red Cedar is used for the framing. We are able to announce that this firm has just established a London office and showroom at Bush House, Aldwych.
Leaderflush Doors Ltd., Trowell, Nottingham.

Control Gear

Moving now to electrical control gear, we have a revised edition of one of the better catalogues. If you want an MK switch or plug, you can find it quickly. The sections are clearly marked and the devices illustrated are in the main well conceived.

The 1959 version of the catalogue is the same as before, except that it includes a new series of round pin switched socket outlets, flush or surface mounted and made in ratings of 2, 5 and 15 amps to fit terminal boxes to BS 1363. Another new product is the 'Fused spur box with D.P. switch' shown at the Electrical Exhibition in 1958. In plain language these are plugs for use with fixed appliances clocks, refrigerators, water heaters, etc., where the switch disconnects both conductors so that it does not matter whether the line and neutral have been put

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'MUSBURY'
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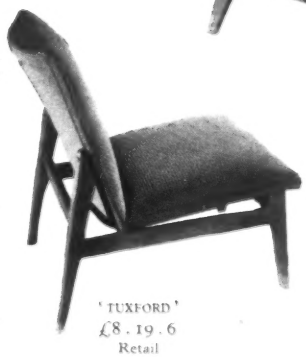

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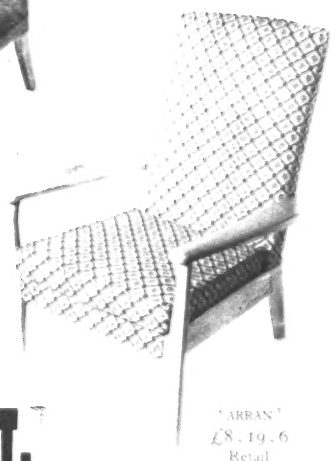

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Architects and those responsible for interior decoration will be glad to know that Parker-Knoll chairs and settees are frequently available at special contract prices.

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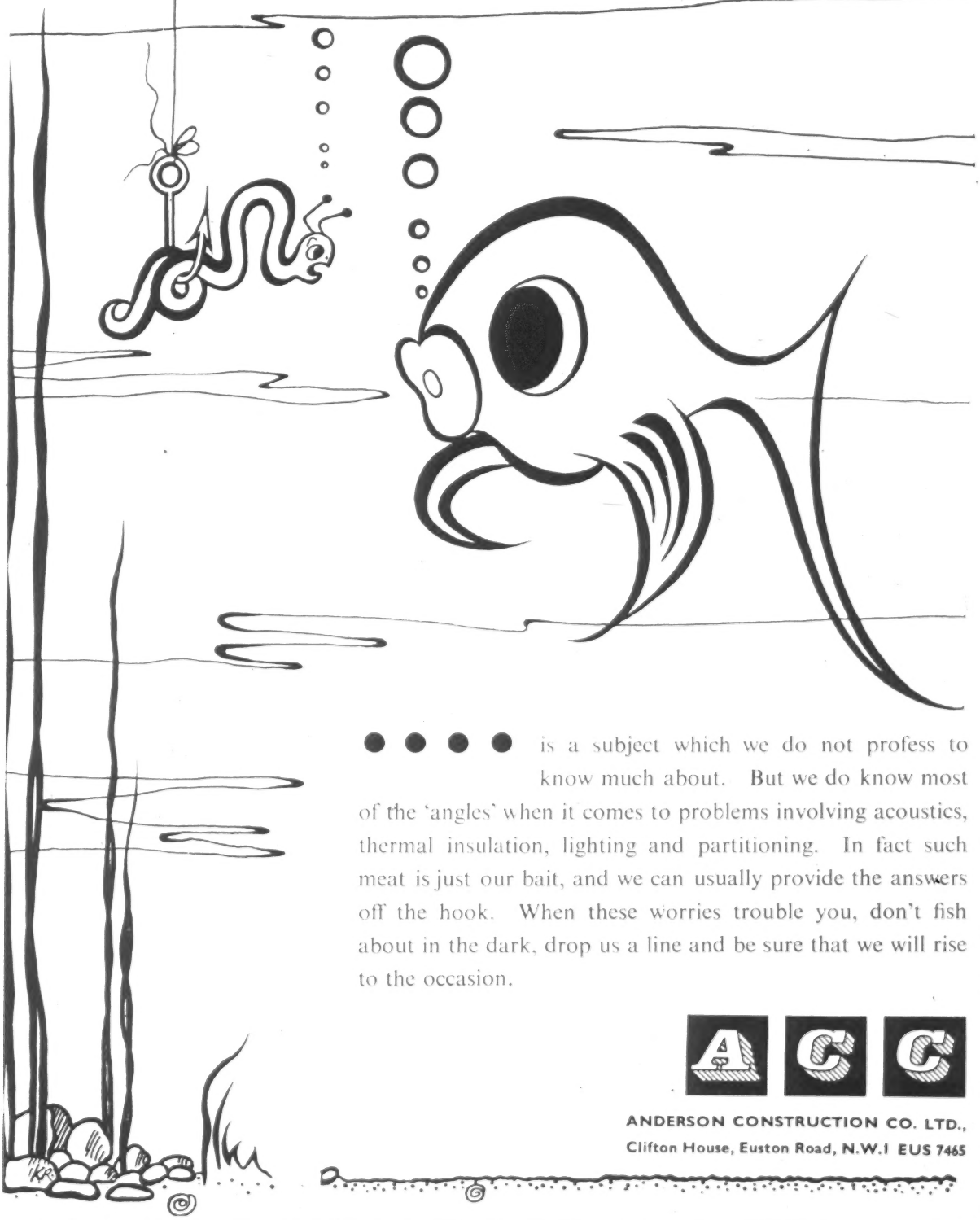
CXS-361

ANGLING....



●●●● is a subject which we do not profess to know much about. But we do know most of the 'angles' when it comes to problems involving acoustics, thermal insulation, lighting and partitioning. In fact such meat is just our bait, and we can usually provide the answers off the hook. When these worries trouble you, don't fish about in the dark, drop us a line and be sure that we will rise to the occasion.

A C C

ANDERSON CONSTRUCTION CO. LTD.,
Clifton House, Euston Road, N.W.1 EUS 7465

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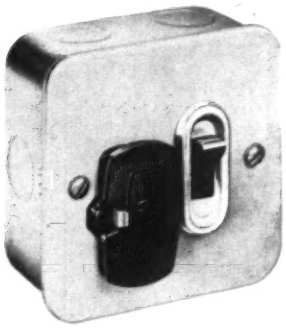


5, new fused spur box with D.P. switch.

in the wrong way round. These outlets are fused and made with or without pilot light.
MK Electric Limited, Wakefield Street, Edmonton, London, N.18.

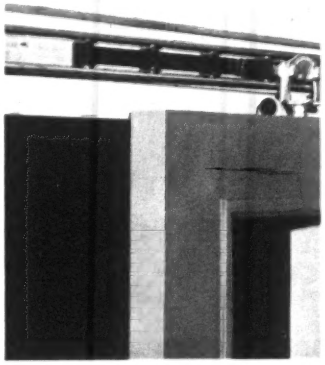
Lighting and fittings

Luminous ceilings enjoy an increasing vogue and one of two catalogues from Cromptons introduces a new one—the Modulume. This is obtainable in either 3-ft. wide strips or in 3-ft. squares of corrugated vinyl sheet. No technical details are given, but the latter appears to consist of inverted trough sections the framing strips being lower than the sheet.

The other catalogue gives the company's range of fluorescent and tungsten fittings. For the former there are very welcome polar diagrams indicating the intensity of light output at various angles to the vertical. Tungsten fittings are, for the most part, pleasantly unexceptionable. The book concludes with a selection of spot, flood and 'eyeball' fittings.
Crompton Parkinson Ltd.; Crompton House, Aldwych, W.C.2.

Domestic sliding gear

There was a time when it was difficult to get sliding gear for domestic size doors that was not bulky and intractible to neat detailing. Now, a number of these are on the market, to be joined by a newcomer from Hendersons. This is the S6 Marathon



track, suitable for doors up to 5 ft. wide and 150 lb. weight. Prices vary from 42s. to 110s.
P. C. Henderson Ltd., Harold Hill, Romford, Essex.

Patent glazing catalogue

Patent glazing must have been one of the earliest departures from traditional techniques for top lighting. It was originally developed for a building type with no historical antecedents the large span, one-storey factory. Since that time it has found more varied uses as a new catalogue from Heywoods, of Huddersfield, shows. Various sections deal with lead clothed bars, aluminium alloy bars, with one pane and two or more pane glazing, with sloping or vertical glass. There are numerous trimming and finishing details and a concluding section covers methods of heat insulation. The catalogue is rich in what might be called rooftrusscape photographs and dimensioned full sizes so that the architect can really see how things are put together. The catalogue is perhaps not so convenient to the shelf as it might be and some indication of cost however approximate would have been useful.
W. H. Heywood and Co. Ltd., Bayhall, Huddersfield.

CONTRACTORS etc

Offices in Knightsbridge. *Architects:* Guy Morgan & Partners. *General contractors:* Taylor Woodrow Construction Ltd. *Metal windows:* The Crittall Manufacturing Co. *Granite:* Fenning & Co. *Glass:* James Clark & Eaton. *Slate:* The Bow Slate & Enamel Co. *Stone:* Brookes Ltd. *Iron staircases:* S. W. Farmer & Sons Ltd. *Metalwork:* The Culford Art Metal Co. *Dampcourses, asphalt, waterproofing:* The Book Asphalte Co. *Stone:* The Bath & Portland Stone Firms Ltd. *Door furniture, cloakroom fittings:* Messrs. Comyn Ching & Co. *Plastering:* Jonathan James Ltd. *Marble:* J. Whitehead & Sons Ltd. *Stairtreads:* Zanelli (London) Ltd. *Mantels:* W. Turner Lord & Co. *Woodblock flooring:* Bennetts Wood Flooring Co.; Calders Ltd. *Fireproof shutters and doors:* Mather & Platt Ltd. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Partitions:* Luxfer Ltd. *Vacuum system:* Burgot Rentals Ltd. *Shop fittings:* Hibberd Bros. Ltd. *Heating, ventilation, plumbing, gas services:* Ellis (Kensington) Ltd. *Electrical installations:* Troughton & Young (Electrical) Ltd. *Clocks:* Telephone Rentals Ltd. *Furniture:* Hille of London Ltd.; Aerofoam Ltd. *Telephones:* Automatic Telephones & Electric Co. *Tiles:* Carter & Co. *Artificial stone:* Girlings Ferro-Concrete Co. *Folding gates:* Haskins Ltd. *Signs:* Russell Signs Ltd.; Drakard & Humble Ltd.; Dent & Hellyer Ltd.; Wondersigns; G. Maile & Son Ltd. *Light fittings:* Allom Heffer & Co.; Falk Stadelmann & Co.; The General Electric Co.; Troughton & Young (Lighting) Ltd. *Stone:* Anselm Odling & Sons Ltd. *Lifts:* The Otis Elevator Co. *Brick suppliers:* Richard Parton (Builders' Merchants) Ltd. *Bricks (flint):* Cape Building Products Ltd. *Facing bricks:* High Brooms Brick & Tile Co. *Curtains:* Edinburgh Weavers. *Joinery:* Builders Supply Co.; *(main entrance hall)* Hibberd Bros. Ltd. *Boilers:* Bouellat Engineering Ltd. *Carpets:* John Lewis & Co. *Soap dispensers:* Newton, Chambers & Co. *Paving:* Fitzpatrick & Sons Ltd. *Special external rendering:* Clark & Fenn Ltd. *Postal delivery system:* Sovex Ltd. *Paving lights:* Leniserete Ltd. *Roller shutters:* Dennison, Kett & Co. *Mosaic work:* Art Pavements & Decorations Ltd. *Ex-*

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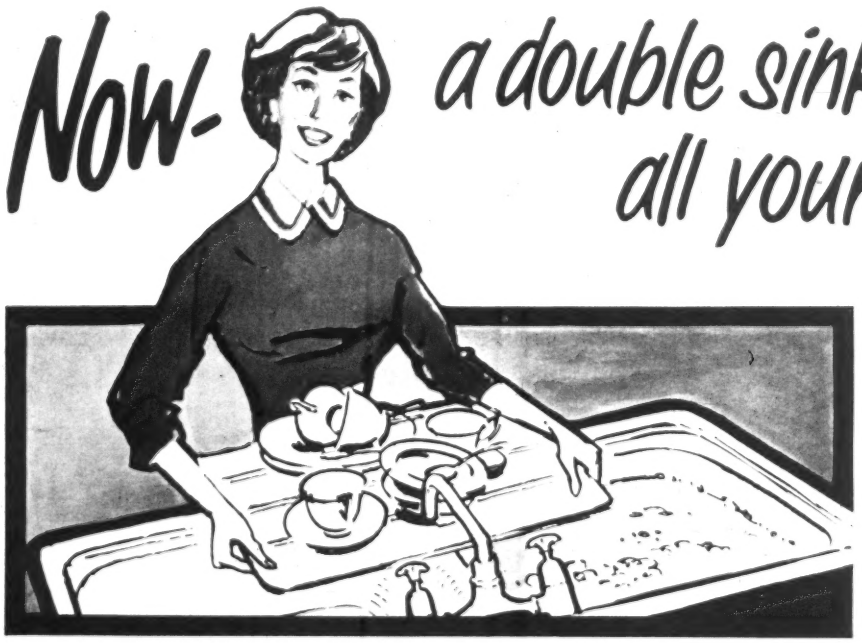
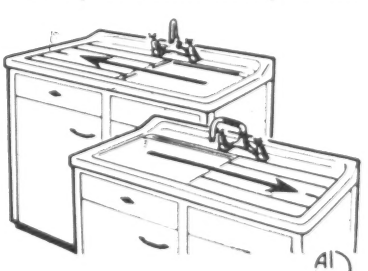
Now- a double sink that fits all your plans



When you are planning, start with the kitchen sink—and make it a 21" x 42" Twin Culsynk. The sliding draining board allows for two full-size bowls in the space of one—two equal bowls or a bowl and a deep tub. Made by LEISURE in gleaming colours of vitreous enamelled steel, the Twin Culsynk lasts, looks lovely and its low cost enables you to fit it into any kitchen.



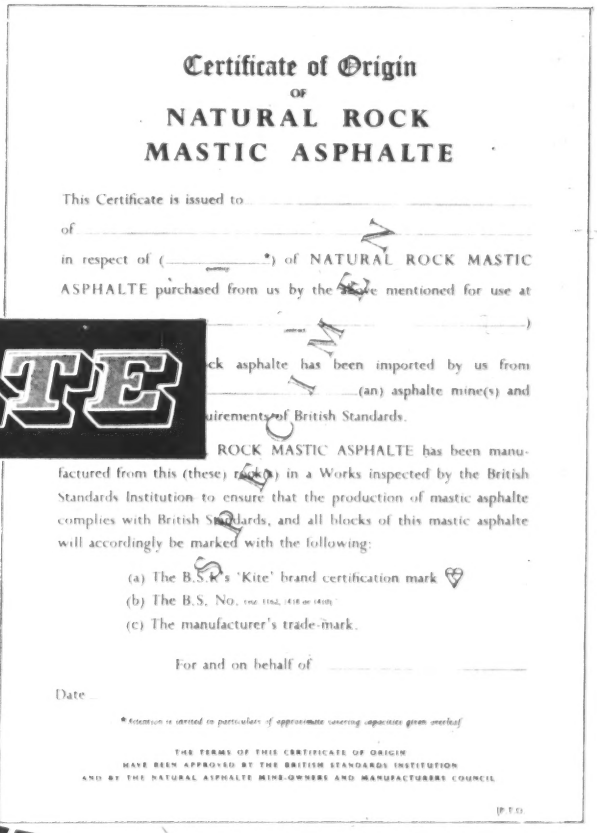
LEISURE
TWIN CULSYNK

This compact CULSYNK saves space, adds looks to any kitchen!

Please write for literature. LEISURE KITCHEN EQUIPMENT LTD, NOTTINGHAM RD, LONG EATON, NOTTINGHAM

PROPRIETORS: ALLIED IRONFOUNDERS LTD.

When specifying NATURAL ROCK MASTIC ASPHALTE insist upon a CERTIFICATE OF ORIGIN



Certificate of Origin
OF
NATURAL ROCK
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This Certificate is issued to .....

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in respect of (.....*) of NATURAL ROCK MASTIC ASPHALTE purchased from us by the above mentioned for use at .....)

...ck asphalte has been imported by us from .....(an) asphalte mine(s) and ...uirements of British Standards.

... ROCK MASTIC ASPHALTE has been manufactured from this (these) rock(s) in a Works inspected by the British Standards Institution to ensure that the production of mastic asphalte complies with British Standards, and all blocks of this mastic asphalte will accordingly be marked with the following:

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Date .....

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ternal doors and screens: H. H. Martyn & Co. *Painting:* J. & B. Abbott (Contractors) Ltd. *Kitchen equipment:* Benham & Sons Ltd. *Metal shelving:* Norwood Steel Equipment Ltd. *Fittings in tea serverys:* W. N. Froy & Sons Ltd. *Cinema equipment:* G. B. Kalee Ltd. *Hangers to ductwork:* Trussed Concrete Steel Co. *Painting:* W. J. Brooker Ltd. *Granolithic:* P.B. Industrial Flooring Ltd. *Metal radiator casings:* Ament Engineering Co. *Acoustic ceilings:* Roof Lining & Construction Ltd. *Holmsund vinyl tiles:* National Flooring Co. *Acoustic tiles:* Bowater Sales Co. *Oil stain remover:* Chemical Building Products Ltd. *Fixing slots and ties:* Abbey Building Supplies Co. *Floor springs:* G. & S. Allgood. *Special staircase steelwork:* Lindsay's Paddington Iron Works (1948) Ltd. *Accotile-floorings:* Rowan & Boden Ltd. *Flag poles:* Piggott Bros. & Co. *Rubber tiles and skirting (special):* Korkoid Decorative Floors. *Lettering:* A. J. Binns Ltd. *Lighting fittings:* National Electrical Supplies Co.

Laboratories at Rangoon. *Architects:* James Cubitt and Partners. *General contractors:* Holland and Hannen & Cubitts Ltd. *Shuttering:* Acrow (Engineers) Ltd. *Panels:* Robertson Thain Ltd. *Fabric reinforcement:* B.R.C. Engineering Co. *Roller shutters:* E. Pollard & Co. *Storage tanks:* Braithwaite & Co.; G. A. Harvey & Co. *Covers:* Dover Engineering Works Ltd. *Submersible pumps:* Sumo Pumps Ltd. *'Vitraflex' rainwater goods:* Robert Cross & Co. *Survey and drawing office equipment:* Lawes Rabjohns Ltd. *Paint:* Hadfields (Merton) Ltd.; Geo. Lillington & Co.; Permacem Paint Co.; Tretol Ltd. *Track:* Sommerfelds Ltd. *Waterproofing:* Exode Ltd.; National Coal Board. *Sanitary fittings:* Stitson Sanitary Fittings Ltd.; Doulton & Co. *Thermal storage heaters, water heaters:* Santon Ltd. *Prefabricated buildings:* S.I. Buildings Ltd. *Space deck units:* Steel Scaffolding Ltd.; Cleveland Bridge Engineering Co. *Wall cladding, roof lights, internal partitions, ventilators:* Henry Hope & Sons Ltd. *Lightning conductors:* R. C. Cutting & Co. *Aerated concrete slabs:* Cheecol Processes Ltd. *Flexible joints:* Expandite Ltd. *Sewerage equipment:* Ames Crosta Mills Ltd. *Air control grilles:* F. H. Biddle Ltd. *Electrical switch fittings:* Walsall Conduits Ltd. *Extract fans:* Woods of Colchester Ltd. *Structural steelwork:* United Steel Structural Co. *Reinforcing bars:* Tentor Bar Co. *Plugs:* Philplug Products Ltd. *Fancoolers:* Copperad Ltd. *Cast iron pipes:* Thames Bank Iron Co. *Mullions, rooflights:* Quicktho' Engineering Ltd. *Asbestos sheets:* Universal Asbestos Co.; Turners Asbestos Cement Co. *Aluminium tee bars:* Anderson Construction Co. *Felt:* The Ruberoid Co. *Cork insulation:* London Covering Co. *Copper tubes and fittings:* Yorkshire Imperial Metals Ltd. *Glass:* Pilkington Bros. Ltd. *Plywood cladding:* Venesta Ltd. *Laboratory furniture:* Cygnet Joinery Ltd. *Cable:* Enfield Cables Ltd.; British Insulated Callender's Cables Ltd. *Fuseboards:* Dorman & Smith Ltd. *Lighting fittings:* Merchant Adventurers of London Ltd.; Utilities (London) Ltd.; Crompton Parkinson Ltd.; Holophane Ltd.; J. & C. Coughtrie Ltd. *Thermostats:* Teddington Industrial Equipment Co. *Aluminium doors:* Esavian Ltd. *Laminated glass and domelights:* Durasteel Ltd. *Insulation quilt:* Fibreglass Ltd. *Refrigeration equipment:* J. & E. Hall Ltd. *Resins:* Leicester, Lovell & Co. *Air filtration equipment:* Heather Filters Ltd. *Translucent laminate sheets:* Saro Laminated Wood Products Ltd. *Pumps, taps, etc.:* Spirax-Sarco Ltd. *Crane components:* Palmer's Travelling Cradle & Scaffold Co. *Alarm system:* Gent & Co. *Asbestos panels:* Cape Asbestos Co. *Metal windows:* Ideal Casements Ltd.; Williams & Williams Ltd. *Heat absorbing glass:* C.T. (London) Ltd. *Polythene tube and fittings:* J. S. & F. Folkard Ltd. *Sliding door track:* Coburn Engineers Ltd. *Bolts:* Rawlplug Co. *Plastic floor tiles:* Marley Tile Co. *Cork flooring:* Armstrong Cork Co. *Floor tiles:* Prodorite Ltd. *Aluminium sheets:* Aluminium Union Ltd. *Timber connectors:* MacAndrew & Forbes Co. *Plastic laminate:* Formica Ltd. *Water heater:* Heatrae Ltd.

Police Housing at Canonbury. *Designed by* Chief Architect's Office, New Scotland Yard. *General contractors:* Rush and Tompkins Ltd. *Cycle racks:* Abix (Metal Industries) Ltd. *External tiling:* Carter and Co. *Door furniture:* Lockerbie & Wilkinson Ltd. *Paint:* Latham Brown & Co. *Ironmongery:* Yannedis & Co. *Cold room:* L. Sterne and Co. *Stage lighting:* Major Equipment Co. *Heating and ventilating:* Norris Warming & Co. *Flooring:* Semtex Ltd. and E. J. Elgood Ltd. *Flush doors:* Jayanbee Joinery Ltd. *Metal work:* General Light Castings Co. *Steel doors:* Haywards Ltd. *Metalwork:* Light Steelwork (1925) Ltd. *Glass domes:* James Clarke & Eaton Ltd. *Terrazzo:* The Camden Tile & Mosaic Co. *Doors and windows:* Henry Hope & Sons Ltd. *Roller blinds:* T. Avery & Co. *Sliding doorgear:* Coburn Engineers Ltd. *Roller shutters:* Hasking Ltd. *Spiral staircase:* Hill & Smith Ltd. *Facing bricks:* Richard Barton Ltd. *Sanitary services:* Pressdee Ltd. *Pressed steel tanks:* Horseley Bridge & T. Piggott Ltd. *Sanitary fittings:* Ashley Brandon (Kensington) Ltd. *Steam cooker:* Crypto Ltd. *Cooking range:* Radiation Group Sales Ltd. *Stainless steel sinks:* Sumerling & Co. *Concrete cycle blocks:* Cawood Wharton & Co. *Turfing:* Grassphalte Ltd.

Flats at Gateshead. *Architects:* G. F. Winters, Borough Engineer. (Chief architect: L. Barry, in succession to the later M. Yendall.) *General contractors:* Geo. Wimpey & Co. *Bricks:* London Brick Co. *Asphalt:* Neuchatel Asphalte Co. *Artificial stone:* Geo. Greenwood & Sons. *Tiles:* Carter & Co. *Glass:* D. R. Maxwell & Co. *Water heaters:* Ascot Gas Water Heaters Ltd. *Door furniture:* N. F. Ramsay & Co. *Casements:* Kingston Architectural Craftsmen Ltd. *Balustrades:* Selbourne Engineering Co. *Doors:* F. Hills & Sons. *Lifts:* Express Lifts Ltd. *Timber curtain walling and infill panels:* H. C. Janes Ltd. *Paints:* International Paints Ltd.

House at Richmond. *Architect:* Malcolm Howard-Radley. *Main contractor:* G. Potton & Sons Ltd. *Subcontractors: Flue hood, balcony balustrade:* A. Cotes. *Roofing:* Neuchatel Asphalte Co. *Sliding window gear and ironmongery:* E. Hill Aldam & Co. *Metal windows:* Wottons (Croydon) Ltd. *Electrical installation:* Parker, Winder & Achurch Ltd. *Floor heating:* Calidec Ltd. *Paving tiles:* Standard Pavements Co. *Cork tiles:* Horsley Smith & Co. *Double glazing:* Hollow Seal Glass Co. *Paints:* Joseph Mason & Co. *Sanitary fittings and kitchen units:* W. N. Froy & Sons Ltd. *Sanitary fittings:* Shanks & Co. *Venetian blinds:* Venetian Vogue Ltd. *Mosaic tiles:* W. B. Simpson & Sons Ltd. *Electric light fittings:* Troughton & Young (Lighting) Ltd. *Water heater:* Aidas Electric Ltd. *Domelights and ventilators:* Seddons Ltd. *Kitchen cupboards:* Jayanbee Joinery Ltd. *Garage up-and-over-gear:* Westland Engineers Ltd. *Veneers:* Alexandra Trading Corporation.

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